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They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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CONTENTS

PUBLIC HEALTH REPORTS

VOL. 47 JULY 1, 1932 NO. 27

EPIDEMIC OF MILD DYSENTERY-LIKE DISEASE IN CATTARAUGUS COUNTY, N. Y., SUMMER OF 1930[1]

By DOROTHY G. WIEHL, *Assistant Director, Division of Research, Milbank Memorial Fund,* and MARY GOVER, *Associate Statistician, United States Public Health Service*

Mild gastrointestinal attacks were very prevalent in Cattaraugus County, N. Y., during the summer of 1930, both in the country and in many small villages. The widespread occurrence of such attacks throughout the county had been noted by the county health department in previous summers, but, since very few cases were attended by physicians, little was known of the actual incidence of the disease. In the course of morbidity and epidemiological studies being carried on in a rural section of the county by the United States Public Health Service with the cooperation of the Milbank Memorial Fund and the county health department, data were collected on the incidence of these attacks. Field assistants have visited over 1,300 families at regular intervals since the latter part of 1929, and their records indicate that from June 1 to October 31, 1930, gastrointestinal attacks were reported by about one-fourth of the families, and that one in seven persons had the disease.

Efforts of the county health department failed to trace the source or determine the type of infection. Whether or not similar outbreaks of an epidemic enteritis have occurred in other parts of New York State is not known. In practically all respects—the widespread distribution of cases, the mildness of attacks, their short duration, and the symptoms reported—the epidemic closely resembled outbreaks of an unidentified disease which have occurred from year to year in the Mountain States of the Northwest and which have been described by Spencer.[2]

No special epidemiological study was made of the gastrointestinal cases, and the general facts available relate to the symptoms of the attacks, their incidence according to month, sex, and age, and a few other factors. Although over 1,300 families are in the morbidity

[1] From the Office of Statistical Investigations, United States Public Health Service, and the Division of Research, Milbank Memorial Fund.

[2] Spencer, R. R.: An unusually mild recurring epidemic simulating food infection. Pub. Health Rep., Nov. 21, 1930, vol. 45, No. 47, p. 2867.

survey, this report is limited to two districts, which were canvassed in July or August and again in the autumn at a time favorable for obtaining a complete record. One of these districts is Ellicottville village, with a population of about 1,000; the other is a farming district adjoining the village and extending westward about 8 miles and with a population of 658, for which records were available. In the rural district practically all families were visited early in November, assuring a fairly complete reporting of cases; but for 30 families living on the main highway who were visited during September and not again for three or four months, the record of September and October attacks may be somewhat incomplete.[3] Village families were visited chiefly between September 29 and October 10, and the gastrointestinal attacks reported for October are probably an understatement.

TABLE 1.—*Chronological distribution of attacks of a gastrointestinal disease in a village and rural district in Cattaraugus County, June–October, 1930*

Month and 10-day period	Ellicottville village	Rural	Month and 10-day period	Ellicottville village	Rural
June 1-10	0	1	Oct. 11-20	0	0
June 11-20	3	1	Oct. 21-31	0	6
June 21-30	1	1			
July 1-10	9	0	Total by months:[2]		
July 11-20	4	6	June	4	5
July 21-31	2	4	July	15	11
Aug. 1-10	13	8	August	50	56
Aug. 11-20	8	39	September	71	17
Aug. 21-31	22	8	October	5	10
Sept. 1-10	24	4	Month unknown	3	1
Sept. 11-20	22	3			
Sept 21-30	25	6	Total	148	100
Oct. 1-10	[1] 5	3			

[1] This is probably an understatement of cases, as the families were visited between October 1 and 15 and again only after 3 months, but 10 or 12 cases would seem a fair estimate for the month of October.
[2] Includes cases for which day of onset was not stated.

The chronological distribution of reported attacks is shown for each of these districts in Table 1. The outbreak in the rural district had a rather "explosive" peak in the middle of August, with over half of the total cases in five months reported in August; but in the village the epidemic was less explosive and the peak of the incidence was distributed over the latter part of August and the month of September. The October incidence in the village was undoubtedly less completely reported than in the earlier months, but the outbreak very evidently came to a rapid close. Over half of the families in the village were visited on October 6, or later, and there were only five October cases reported, of which two were secondary attacks in families reporting several September cases. In fact, the indications were that throughout the area in the morbidity study few cases occurred in October.

[3] Several studies have shown that mild illnesses of 1 to 3 days duration are forgotten and reporting becomes increasingly incomplete as the time interval between the attack and the report lengthens.

All attacks with gastrointestinal symptoms have been included except a very few isolated single cases which were reported as caused by eating "too many" green apples, corn, watermelons, etc. For most cases the symptoms reported were diarrhea, nausea, or vomiting with or without "upset" stomach (Table 2), but there are included also a number of attacks reported simply as "upset" stomach, as well as one or two cases each of intestinal indigestion, intestinal influenza, biliousness, and ptomaine poisoning. Occasionally these symptoms were accompanied by headache or fever or both. Although it has been impossible to select only those cases of uniform type, certainly the great majority were attacks of the same dysentery-like disease.

TABLE 2.—*Classification, by symptoms, of gastrointestinal attacks reported in Ellicottville village and in a rural township in the summer of 1930*

Symptoms	Ellicottville		Rural	
	Number	Per cent	Number	Per cent
Total cases	148	100.0	100	100.0
Diarrhea:	92	62.2	66	66.0
Without other symptoms	41	27.7	29	29.0
With nausea or vomiting	34	23.0	33	33.0
With upset stomach	17	11.5	4	4.0
Nausea and vomiting	20	13.5	23	23.0
Without other symptoms	12	8.1	16	16.0
With upset stomach	8	5.4	7	7.0
Upset stomach	30	20.3	9	9.0
Bilious attack, intestinal indigestion, ptomaine poisoning, etc.	6	4.1	2	2.0

The duration of the attack was 1 to 3 days in 75 per cent of the cases, and the severity was sufficient in only a few instances to confine the patient to bed. For only 13 of the 248 cases was it reported that symptoms persisted more than 7 days; but 6 persons said they had been affected "off and on" over periods of 6 weeks to 4 months. There were no deaths among these 248 cases.[4]

Cases were reported in all sections of both the village and the rural district. Though there were a few blocks in the village and some stretches of road in the country where no case was reported, the cases were well distributed throughout these two districts. Furthermore, the cases did not appear first in any one or two sections from which

[4] In the county as a whole deaths from diarrhea and enteritis, which have been very few in recent years were somewhat more numerous in 1930 than in 1929 or 1928. The deaths attributed to diarrhea and enteritis in recent years were as follows:

	1926	1927	1928	1929	1930
Under 2 years of age	12	8	5	3	6
2 years of age and over	7	12	4	6	9

the spread of the disease could be followed; instead, the June and July cases, as well as the later cases, occurred in widely scattered parts.

The reported incidence for the five months, June to October, inclusive, in the village was 15.6 per 100 persons, as compared with 15.2 in the rural district. Since few second attacks for the same individual were reported [5] (8 in the village and 5 in the rural district), the per cent of persons reporting cases was nearly the same as the attack rate. If the six individuals who said they had nausea and diarrhea "off and on" for six weeks or more were added to the 13 who reported specific second attacks, this would make 19 persons who had the disease more than once, or 8 per cent of the total number attacked.

Approximately one-fourth of the families in each district had at least one case during the summer months; 28.8 per cent of the village families reported a case, and 26.6 per cent of the families in the rural district. More than one case was reported for about one-half of the rural families attacked (51.1 per cent), and slightly less than half (43.5 per cent) of the village families. The attack rate in families in which at least one case of the disease occurred and, therefore, in families in which, presumably, the infection was present, if we may assume some infection as the cause, was 45.4 per 100 persons in village families and 49.3 in rural families.

When more than one case occurred in a family the onsets of the several cases were reported very frequently as the same day or at least within two or three days. Thus, in 14 multiple-case families in which the date of onset of all cases was stated, every case in the family gave the same date of attack. In many other instances several cases occurred on the same day and were followed shortly by other cases. Accurate dates for the onset of attacks obviously are difficult to obtain, especially if several weeks have elapsed, and there may have been a tendency to report the same date or say "at the same time" when actually there was a brief interval between cases. The interval between cases was given as 1 to 3 days most frequently, with only 2 cases after an interval of 4 days, 3 after 5, 5 after 7 days, and 5 after 8 to 11 days. In 17 families 1 or more cases occurred from 13 days to 10 weeks after earlier cases in the household, but it is possible that the earlier and later cases were not always attacks of the same disease. Because of the frequency with which multiple cases occurred in the family on the same day, a secondary household attack rate has not been computed.

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[5] In the epidemic reported on by Spencer, second attacks were "frequent." Careful inquiry for second attacks in Cattaraugus County would perhaps have shown that some of the persons reporting cases of relatively long duration really had second attacks.

TABLE 3.—*Incidence of gastrointestinal attacks according to age in a village and a rural district of Cattaraugus County, Summer, 1930*

Age group	Cases per 100 persons		Population		Number of cases	
	Village	Rural	Village	Rural	Village	Rural
Total	15.6	15.2	947	658	148	100
Under 1	23.8	27.3	21	11	5	3
1 to 4	32.3	43.8	65	48	21	21
5 to 14	19.9	21.1	151	142	30	30
15 to 24	9.9	10.5	141	86	14	9
25 to 44	19.5	9.9	220	171	43	17
45 to 64	9.9	6.9	232	131	23	9
65+	9.3	17.5	107	63	10	11
Unknown			10	6	2	

The attack rate according to age groups is given in Table 3. Cases occurred among persons of all ages, but the attack rate was highest for young children. The infant rate may be too high, because it was not possible to separate attacks of infant diarrhea from cases of epidemic diarrhea, and five of the eight infant cases were in homes without other intestinal attacks. The highest incidence unquestionably was among children from 1 to 4 years of age, for whom the attack rate was 32 per 100 in the village and 44 in the country. The rate was relatively high also for children 5 to 14 years of age. Although children apparently were especially susceptible to this disease, many adults were attacked who had no familial contact with childhood cases, and the incidence among adults averaged 10 per 100 persons. The age curves for the rural district and for the village were essentially the same.

The incidence for each sex by age groups is shown in Table 4. For children under 5 years of age the attack rate was higher among males than among females, but for all adult ages the female rate was higher than the male. This difference in the adult rates by sex may reflect chiefly that the informants, usually the women, reported more completely on themselves than on their husbands.

TABLE 4.—*Incidence of gastrointestinal attacks according to age and sex in a part of Cattaraugus County, Summer, 1930*

Age group	Cases per 100 persons			Population			Number of cases		
	Both sexes	Males	Females	Both sexes	Males	Females	Both sexes	Males	Females
Total	15.5	14.1	16.8	1,605	814	791	248	115	133
Under 1	25.0	27.8	21.4	32	18	14	8	5	3
1 to 4	37.2	43.9	30.4	113	57	56	42	25	17
5 to 14	20.5	19.2	21.9	293	156	137	60	30	30
15 to 24	10.1	7.6	13.0	227	119	108	23	9	14
25 to 44	15.3	12.9	17.6	391	186	205	60	24	36
45 to 64	8.8	6.0	11.7	363	184	179	32	11	21
65+	12.4	11.5	13.3	170	87	83	21	10	11
Unknown				16	7	9	2	1	1

The occurrence of cases in families of different economic status is of interest because economic status probably is a fairly good index of differences in general environmental conditions, such as home sanitary conditions and general standard of living. Each of the families in the morbidity study had been given an economic rating by the field investigators based on their impressions after visiting the homes several times. The incidence of these intestinal attacks in families in the various economic classes is shown in Table 5. Because of the high incidence among children and the greater proportion of the population in younger ages in poor families, rates standardized for age are given. These show no significant differences in the attack rate for persons in the several economic classes.

TABLE 5.—*Incidence of gastrointestinal diseases according to economic status of families in a village and a rural district of Cattaraugus County, June–October, 1930*

Economic classification	Number of persons	Number of cases	Rate per 100 persons	Standardized rate [1]
All classes	1,605	248	15.5	----------
Comfortable	347	42	12.1	12.6
Moderate+	641	101	15.8	16.3
Moderate−	341	51	15.0	14.7
Poor or very poor	276	54	19.6	15.6

[1] To the age distribution of all classes.

A special sanitary survey of rural families was made during the summer of 1930, and this makes possible a tabulation of cases according to cleanliness and according to the presence of flies in the house. Although the visit at which this rating was made did not coincide with the occurrence of cases, the homes were visited about the middle of July or the last week in August. The per cent of households attacked showed no variation for families of different ratings (Table 6).

TABLE 6.—*Per cent of households in which one or more cases of a gastrointestinal disease occurred, according to cleanliness rating and presence of flies, in a rural district of Cattaraugus County, June–October, 1930*

Cleanliness				Flies			
Cleanliness rating [1]	Number of households	Households attacked	Per cent attacked	Flies in dwelling	Number of households	Households attacked	Per cent attacked
All classes	[2] 151	39	25.8	Any number	[2] 151	40	26.5
A	55	15	27.3	Few	93	23	24.7
B and C	74	18	24.3	Moderate	32	9	28.1
D and E	22	6	27.3	Abundant	26	8	30.8

[1] The person making the sanitary survey rated the homes from A for the cleanest to E for the dirtiest.
[2] There were 18 families without a cleanliness rating or statement on number of flies, but not in every case the same family.

Cleanliness and flies are factors which might be associated principally with the spread of the disease within the household and, therefore, Table 7 is presented in which the attack rate is given for persons in families in which at least one case occurred. Rates are shown for persons under 15 years of age and persons aged 15 or older living in households differing as to cleanliness and as to the number of flies. The number of persons in each class is too small to yield dependable attack rates, but there is a suggestion that the incidence among children was higher in homes that were not clean or where flies were noted than in homes classed as clean and with few flies. This association does not appear in the case of adults, and no definite conclusion as to the importance of dirt or flies seems justified.

TABLE 7.—*Incidence rate of gastrointestinal disease among persons in households reporting one or more attacks, according to cleanliness and flies, in homes in a rural district of Cattaraugus County, June–October, 1930*

Household rating	Number of persons in households reporting one or more cases		Number of cases in households attacked		Rate per 100 persons in households attacked	
	Under 15 years	15 years or older	Under 15 years	15 years or older	Under 15 years	15 years or older
	Cleanliness [1]					
All classes	72	109	51	38	70.8	34.9
A	14	43	8	19	57.1	44.2
B and C	35	50	24	15	68.6	30.0
D and E	23	16	19	4	82.6	25.0
	Flies					
Any number	75	112	53	40	70.7	35.7
Few	21	69	12	27	57.1	39.1
Moderate	23	19	18	8	78.3	42.1
Abundant	31	24	23	5	74.2	20.8

[1] The person making the sanitary survey rated the homes from A for the cleanest to E for the dirtiest.

The behavior of this outbreak of dysentery-like disease suggests that it is an infectious enteric disease, but the specific cause and the means of its spread remain undetermined. Water may be eliminated as the source of the disease. The rural families have individual wells or springs, many of which have been tested, and the infection of such a large number of wells and springs scattered over a considerable area would seem highly improbable. The village has a central water supply and the occurrence of cases over so long a period is contrary to the characteristic epidemic caused by a water-borne infection from a central supply.

The symptoms of the attacks and the sudden occurrence of several cases in the family within a very few days suggests a possible food infection. On the other hand, the wide distribution of families attacked and the occurrence of cases over several months make it extremely unlikely that there was any item of food which was eaten by all persons attacked.

The distribution of cases, and to some extent the symptoms, are suggestive of bacillary dysentery, but the mildness of attacks and the short duration of symptoms would differentiate these cases from the characteristic bacillary dysentery.

SOME ADMINISTRATIVE PROBLEMS OF SICK CALL IN PENAL INSTITUTIONS [1]

By C. A. Bennett, *Acting Assistant Surgeon, United States Public Health Service*

"Sick call" originated as a military and naval term designating a summons for sick soldiers and sailors to report to the medical officer for treatment. It has been an accepted term in correctional institutions as being the dispensary medical service for the ambulant sick. Sick call is used, therefore, as a synonym for the out-patient service for a prison community in contradistinction to the in-patient, or hospital service.

A consideration of the problems confronting the administration of sick call concerns itself with a brief review of the material with which one must work, with the time for sick call, place, facilities, and the relationship of the out-patient service to the medical service as a whole and to the institutional functions in general.

It is, perhaps, significant that observations show that prisoners, as a rule, have a higher incidence of physical and mental disease than is found in a civilian population. Such a statement is more astounding when one appreciates that almost one-half of the admissions to prisons are under 30 years of age, an age period when disability and sickness rates are ordinarily low. Thus an adequately balanced medical service is even more essential in penal institutions than in a civilian group of like age.

Exclusive of venereal diseases, approximately one-third of the male admissions have definite physical conditions requiring medical and surgical treatment. Many of these physical disabilities materially interfere with the individual in making a satisfactory social and economic adjustment in his community, and tend to be contributory to delinquency.

From a survey of statistics compiled at the United States penitentiary at Leavenworth, Kans., many striking things are revealed.

[1] Read before the Sixty-first Annual Congress of the American Prison Association, held in Baltimore, Md., Oct. 18-23, 1931.

The venereal disease incidence among prisoners has wide variations. Thus the syphilis incidence is approximately 10 per cent among white men, 36 per cent among colored men, 5 per cent among Indians, and 29 per cent among Mexicans; active gonorrhea averages about 4 per cent among white men, 6 per cent among colored men, 5 per cent among Indians, and 10 per cent among the Mexicans.

In 742 white men out of 900 of all races and colors admitted between March 27, 1931, and August 16, 1931, 20 per cent were found to have superior intelligence and 24 per cent defective intelligence; the remaining 56 per cent fall in the group of average intelligence. There is, of course, a wide difference in the intelligence of men in various crime groups. Among prohibition law violators in a group of 742 white men only 11 per cent had superior intelligence, while 32 per cent were found to be defective in intelligence. In a small group of violators of the national banking laws, 71 per cent had superior intelligence and none defective intelligence. Among the mail fraud violators, 50 per cent were superior in intelligence and 3 per cent were found to be defective in intelligence. Many of those prisoners found defective in intelligence are really feeble-minded and require supervision of some kind, either communal or institutional, for the remainder of their lifetime. These extremes are found in far greater frequency in a prison population than in a civilian population. This situation may be a significant factor for consideration in the successful management and application of prison discipline.

Besides that group definitely feeble-minded, others are insane. Still others possess traits of character peculiar to the general rank and file of a prison population, and are classed as psychopathic types. These individuals become the problem cases of many institutions. They occur in varying proportions, in some instances constituting almost one-third of the admissions.

Many prisoners have been living by their wits alone, and comprise a conniving, scheming class who will adopt any method, regardless of consequence, to gain a brief respite from the general routine of labor. Among this group are those who consciously assume symptoms of disease to evade work. It takes all the ingenuity of the medical service to judge certain individuals correctly and to show that their alleged illness is not genuine.

There is also a varying proportion of inmates who unconsciously simulate disease, or who are inclined to derive no little satisfaction from taking medicine of one kind or another. These personalities magnify their aches and pains, reaping a certain satisfaction through attendance upon sick call, and are not peculiar to the prison population. Many patients at private or public dispensaries are of this psychoneurotic group; and it is beginning to be appreciated that they

require special handling. Many persons of this type sorely try the patience of the medical service.

The time for sick call is purely a matter of choice, and should be that best suited for the purposes of the institution as a whole. The matter of eliminating any unnecessary loss of time from prison occupation and yet procuring efficient and satisfactory medical service is essential. Naturally, sick call is meshed with the cog wheel of prison routine at a point where it may be most useful. Loss of time from work can not be excluded completely.

It is a known fact that efficient work will not be obtained from a physically handicapped prisoner; therefore it is essential that a certain amount of time be designated for the care and treatment of the prison population. In other words, the medical service reserves the privilege of demanding the necessary time adequately to maintain an efficient laboring class of men.

Loss of time might be well controlled in institutions of a lesser size, if passes were issued to the men requesting to appear on sick call by the foreman or superintendent of the department where they work. Upon this pass should appear the man's number, place of work, time he left work, and the time he left the clinic. In larger institutions one or two guards or keepers might well be assigned to that period designated for sick call, to march the men in groups from their places of work to the clinic, and return them to work as soon as they have received the necessary medical attention.

Assuming that the morning mess is usually completed in most institutions by 8 a. m., this undoubtedly would be the appropriate hour for maintaining the out-patient clinic. It would give the medical service sufficient time to become prepared to give efficient service to the sick. In an institution of 3,000 inmates, 225 visits may readily be handled in one hour and 15 minutes, thus allowing the remainder of the day for uninterrupted institutional labor on the part of the prison population and for the medical service to perform its in-patient duties.

The question of a suitable place for holding sick call is a question that must be solved by the institution itself. Obviously it is important that the dispensary and clinic be in close proximity to the hospital. In many institutions no suitable place has been set aside for the handling of sick call, but to date many of the newer hospitals have fortunately been provided with a clinic so arranged adequately to care for the out-patient service in the building itself.

A separate building, well lighted and well ventilated, isolated from the hospitalized patients, with a separate entrance and exit, is preferable. The arrangement of the dispensary should be such that a smooth-running clinic can be maintained. A dispensary with a station for the card file, doctor, prescription window, dressing or

treatment rooms, dental clinic, an eye, ear, nose, and throat clinic, and a clinic for venereal diseases, is undoubtedly ideal.

In order properly to maintain a smooth-running clinic, the problem of facilities arises. The facilities of a clinic in many instances, in years past, have been sadly wanting. It is needless to state that a clinic can not be maintained to any degree of efficiency without being properly equipped. An adequate medical personnel is the first and most important factor. One physician can not possibly care for and treat thoroughly the out-patient sick for an institution of any size. Special examinations can not be avoided, and consultations will be sought in many cases. Owing to the large numbers of psychoneurotic and psychopathic groups, innumerable examinations and interviews are necessary to distinguish the sick from those simulating illness, and properly to adjust the neurotic to his environment. Ingenuity upon the part of the medical staff in installing conveniently the facilities at hand, which need not be elaborate, obviates much loss of time and expense.

Malingering is an art unto itself. Those inmates who ply the wiles of deceit are surely skilled in this practice. Where is the prison physician who can conscientiously determine the difference between a faked spinal or gastric symptomatology from the true? Yet there are appropriate methods at hand to aid in the control of such a condition. For example, a card for each inmate may be so arranged as to include data essential to maintain an efficient sick call consistent with materials at hand. The card may include the inmate's name and register number, a column for dates, diagnosis, medications, and dispositions. These cards may be conveniently kept in a suitable file at the place of sick call. Furthermore, those whom the medical officer believes to be simulating illness, might readily be set aside and given a thorough physical examination, or any further examination necessary to detect presence or absence of disease. If it is found that the prisoner is simulating, it is wise to report him to the proper official for discipline. Let it be stated here that a too hasty decision upon the part of an examiner often meets with disaster, and it might be well to give the inmate the benefit of the doubt in dubious cases.

A surprising fact, appreciated by all of the medical officers who have been in the service of correctional institutions any length of time, is that innumerable prisoners are sufferers from the so-called cathartic drug habit. Visitors on sick call come day after day for cathartics, taking one for a time, then another. The probable explanation of such a condition possibly is due in large part to steam-cooked food prevalent in institutions and to the sedentary life. Green foods are difficult to obtain as an item of the inmates' diet, especially during the winter months and early spring. The sluggishness of the prison body as a whole is often due to the overcrowded

conditions of correctional institutions, which minimize working and recreational activities. Possibly the mental factor plays a part in this problem, for there is, of course, a marked change in the environment of a prisoner from that to which he was accustomed outside.

The problem of prescribing poisonous and narcotic drugs, or drugs which have a cumulative effect, might appropriately be discussed here. It is a dangerous practice to form a habit of prescribing sedatives, analgesics, hypnotics, and such drugs, promiscuously on sick call, especially those which have a cumulative effect. Some narcotic addicts have originated in jails and prisons, from the prolonged use of sedatives for pain issued on sick call. These drugs can not be dispensed with entirely and must be resorted to as the occasion arises; but if such are prescribed, it must be done judiciously.

Cases of suicide are not infrequently found in prisons. The use of poisonous drugs in clinical dressings and treatment on sick call properly reverts to the direct supervision of a medical officer. If the occasion arises necessitating the use of such drugs in the treatment of disease, it might well be performed in the in-service department of the hospital, whereby patients can be well controlled. It is needless to state that too much care can not be observed in such cases, thereby avoiding embarrassment to the medical service in the event of a "drug" death. The "lock and key" method for such drugs is the safe method to follow.

The expense of drugs in maintaining a medical service is a financial factor in every institution, few of which allot sufficient funds to provide adequately in this respect. The usual specifics are essential; proprietary drugs as a rule are unnecessary, although a few should be provided. This item of expense can be minimized by dispensing in proper containers, using the minimum dosage instead of an excess.

The dispensary service in prisons should be intimately connected with the hospital in the same way that the dispensary service is connected with the hospital in civil life; and the relationship existing between the dispensary and the hospital, likewise, should be similar. Proper correlation is necessary; one can not well thrive without the other. The acutely ill, those in surgical need, those suffering from contagious or infectious diseases, and the mentally sick, enter the clinic for relief and,. if need be, hospitalization. In this manner the in-patient service working through the out-patient service, or clinic, keeps in contact with the prison population.

If separate services are maintained, proximity to each other is not only convenient but economical. Laboratory tests and examinations, including X ray, must be obtained to procure a proper

diagnosis; therefore, one laboratory may well serve the purposes of both services.

Hospital records are not complete unless they include both the in-service and out-service departments and are properly compiled in a central office located in the hospital. In order to make a completed study of any case, the out-patient record must be obtainable. The discharged patient's file will not be complete without his clinical record. Therefore, a complete systematic sequence of records must be installed, including all medical data from the time of the prisoner's admission to his release from the institution; and these records should be filed away in a centrally located office, accessible at any future date to the medical service. Not infrequently the medical service is called upon to produce certain medical information bearing upon the life of a previously confined prisonér. Prison morbidity statistics are interesting and instructive, and they can not be of the greatest value unless adequate, complete records are accumulated in both services.

A medical service of high degree is difficult to obtain in any prison, by the medical personnel alone, and is accomplished only by the cooperation of the entire institutional personnel as a whole. When this cooperation is forthcoming, then and then only will the medical service in its entirety flourish. If this is not provided, then it will take a large amount of diplomacy and perseverance on the part of the medical officer in charge to achieve the best results. Usually the cooperation of the officials of the institution is given willingly and gladly, if the efforts of the medical service are commendable and obtain results.

It is needless to state that the out-patient service must abide by certain institutional rules, uncomplainingly, although such compliance may appear a handicap to the medical service; for it must be remembered that the safeguarding of the institution is the superior consideration. Certain prison rules and routine might be changed in order to facilitate the medical service, if the facts are judiciously explained. Radical changes in the out-patient service can not take place in a day. Months may be consumed in molding this service into a smooth-running, efficient organization, whereby results will be obtained in an expedient and economical manner. The study of sick call is fascinating, and it is hoped that the points here discussed may prove helpful to both the medical service and prison officials.

COURT DECISION RELATING TO PUBLIC HEALTH

State board of health held without authority to adopt regulations governing sterilization of containers used in dispensing soft drinks.—(Utah Supreme Court; State *v.* Goss, 11 P. (2d) 340; decided May 3, 1932.) The Utah State Board of Health adopted regulations requiring that

operators of soda fountains, root-beer stands, etc., dispense beverages in containers that had been sterilized in a manner specified or in single-service, paper containers. In an action against the defendant, the owner and operator of a root-beer stand, for violation of such regulations, the city and district courts sustained a demurrer to the complaint and discharged the defendant. The ground of the demurrer was that the facts stated in the complaint did not constitute a public offense. The State appealed to the supreme court.

On behalf of the defendant, it was urged that the State board of health had no power or authority to adopt the regulations in question and that, in so doing, it attempted to exercise a legislative function which could not be delegated by the legislature to the board. The State contended that the power of the State board of health to adopt the said regulations was derived from a statute which, among other things, provided that the board "shall have authority to make such rules and regulations, not contrary to law, as may be deemed necessary for the preservation of public health." The supreme court pointed out that the legislative power of the State, vested by the constitution in the legislature and, under specified circumstances, in the people, could not be delegated, but that, where a certain policy had been prescribed by statute, the power to make regulations to carry such policy into effect could be conferred upon or delegated to an administrative agent such as a board or commission. In deciding that the State board of health had no authority to adopt the regulations involved in the instant case, the court stated, in part, as follows:

We are unable to find anything in the statute defining a policy or creating a law with respect to the subject of utensils used in serving the public with soft drinks. There is nothing which defines legislative policy with respect to this particular subject. The general power to make rules and regulations, unlimited except that they shall not be contrary to law, is coextensive with the State police power as it affects public health. We think it clear that, under this general language, the State board of health is not empowered to pass rules and regulations having the force of law regulating the conduct of the people of the State with respect to all matters having some relation to the public health. This indeed would be the delegation of legislative power if the words of the statute should be so construed. The language must be taken to be limited to the particular matters and things specified in succeeding sections of the statute wherein duties are imposed upon the State board of health with respect to particular subjects or situations with respect to the public health. * * *

Two of the five justices took the view that the regulations involved in the case were not only lawful and reasonable but necessary for the preservation and protection of the public health.

DEATHS DURING WEEK ENDING JUNE 11, 1932

Summary of information received by telegraph from industrial insurance companies for the week ended June 11, 1932, and corresponding week of 1931. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)

	Week ended June 11, 1932	Corresponding week, 1931
Policies in force	72, 767, 250	75, 136, 092
Number of death claims	13, 673	13, 770
Death claims per 1,000 policies in force, annual rate	9. 8	9. 6
Death claims per 1,000 policies, first 23 weeks of year, annual rate	10. 3	10. 7

Deaths [1] from all causes in certain large cities of the United States during the week ended June 11, 1932, infant mortality, annual death rate, and comparison with corresponding week of 1931. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)

[The rates published in this summary are based upon mid-year population estimates derived from the 1930 census]

City	Week ended June 11, 1932				Corresponding week, 1931		Death rate [2] for the first 23 weeks	
	Total deaths	Death rate [2]	Deaths under 1 year	Infant mortality rate [3]	Death rate [2]	Deaths under 1 year	1932	1931
Total (85 cities)	7, 535	10. 8	615	[4] 50	10. 7	610	12. 2	13. 1
Akron	38	7. 5	3	37	7. 1	3	7. 7	8. 2
Albany [5]	35	14. 0	3	61	14. 5	1	14. 7	15. 5
Atlanta [6]	87	16 0	6	58	12 6	6	14. 0	15. 9
White	44	12 3	3	44	11 0	3	11. 0	12. 7
Colored	43	23 5	3	86	15 7	3	20. 1	22. 1
Baltimore [5] [6]	211	13 4	13	46	11 2	17	14. 3	16. 0
White	160	12 5	9	41	9 5	11	13. 3	14. 6
Colored	51	17 8	4	64	18 5	6	18. 8	22. 5
Birmingham [6]	57	10 8	9	94	11 8	3	11. 8	14. 7
White	23	7. 0	6	99	7. 8	0	9. 4	11. 4
Colored	34	16. 9	3	81	18 3	3	15. 8	20. 2
Boston	218	14. 5	28	85	10. 9	16	15. 4	15. 5
Bridgeport	28	9 9	5	89	11 0	3	11. 6	12. 2
Buffalo	127	11. 3	17	82	11. 8	10	13. 7	14. 5
Cambridge	26	11 9	1	21	5. 0	1	13. 8	13. 4
Camden	34	14. 9	4	70	10. 5	3	16. 0	15. 8
Canton	20	9 7	3	75	8. 3	1	10. 0	11. 3
Chicago [5]	590	8 8	38	37	9. 5	51	10 6	11. 4
Cincinnati	125	14. 1	5	32	11 5	6	15. 9	17. 0
Cleveland	165	9 4	15	49	11. 2	14	11. 7	12. 2
Columbus	87	15. 2	1	10	10. 6	3	14. 5	14. 9
Dallas [6]	52	9. 6	13	--------	10. 9	8	10. 7	12. 2
White	35	7. 8	9	--------	10. 6	7	9. 7	10. 8
Colored	17	18 3	4	--------	12. 1	1	15. 5	18. 7
Dayton	29	7. 3	1	14	13. 5	1	12. 9	13. 2
Denver	59	10. 5	6	59	12. 0	3	15. 5	15. 0
Des Moines	22	7. 9	3	51	6 9	4	12. 1	11. 5
Detroit	245	7. 4	20	36	7. 6	26	8. 3	9. 2
Duluth	34	17. 4	6	174	11. 3	1	11. 2	11. 8
El Paso	28	13. 7	4	--------	19. 4	3	14. 3	16. 9
Erie	23	10. 1	1	21	10. 2	4	12. 2	11. 5
Evansville	22	10. 9	0	0	13. 5	1	10. 2	11. 9
Fall River [5] [7]	24	10. 9	3	80	11. 8	2	12. 8	13. 4
Flint	22	6. 8	5	73	7. 9	2	8. 3	8. 0
Fort Wayne	22	9. 5	1	26	9. 2	0	10. 6	11. 4
Fort Worth [6]	35	10. 7	4	--------	7. 8	1	10. 3	11. 9
White	27	9. 8	2	--------	8. 2	1	10. 0	11. 5
Colored	8	15. 7	2	--------	5. 8	0	12. 8	14. 2
Grand Rapids	28	8. 4	4	68	9. 1	3	9. 8	9. 9
Hartford	16	4. 9	2	27	--------	--------	--------	--------
Houston [6]	79	12 7	4	--------	12. 3	10	11. 1	11. 5
White	60	13. 1	8	--------	12. 4	10	10. 3	10. 6
Colored	19	11. 6	1	--------	11. 9	0	13. 2	14. 0

See footnotes at end of table.

Deaths [1] *from all causes in certain large cities of the United States during the week ended June 11, 1932, infant mortality, annual death rate, and comparison with corresponding week of 1931. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)*—Continued

City	Week ended June 11, 1932				Corresponding week, 1931		Death rate [2] for the first 23 weeks	
	Total deaths	Death rate [2]	Deaths under 1 year	Infant mortality rate [3]	Death rate [2]	Deaths under 1 year	1932	1931
Indianapolis [6]	89	12.4	7	57	11.4	12	13.4	14.5
White	76	12.1	6	55	11.1	12	13.1	14.1
Colored	13	14.7	1	69	13.8	0	16.0	17.7
Jersey City	66	10.8	5	41	10.3	8	12.0	12.9
Kansas City, Kans. [6]	29	12.2	2	44	11.5	1	13.0	14.4
White	19	9.9	0	0	11.0	1	12.6	13.3
Colored	10	22.1	2	256	13.3	0	14.9	18.8
Kansas City, Mo.	96	12.1	4	45	10.8	5	12.7	14.4
Knoxville [6]	23	10.7	4	101	13.4	3	12.6	13.9
White	19	10.6	3	84	9.7	3	11.4	12.7
Colored	4	11.4	1	270	32.2	0	18.6	19.7
Long Beach	25	8.1	1	26	10.6	1	9.5	10.3
Los Angeles	257	9.7	14	42	11.9	22	11.0	11.3
Louisville [6]	68	11.5	5	46	12.9	1	13.7	15.6
White	56	11.2	5	52	11.6	1	12.4	14.0
Colored	12	13.1	0	0	19.7	0	21.1	24.7
Lowell [7]	27	14.1	4	105	13.0	1	14.9	13.4
Lynn	16	8.1	1	28	6.1	2	11.3	11.3
Memphis [6]	91	18.1	12	131	13.3	4	16.8	17.1
White	45	14.5	9	154	11.4	2	13.2	14.1
Colored	46	23.9	3	90	16.3	2	22.7	22.1
Miami [6]	23	10.6	2	56	8.3	0	12.0	13.0
White	17	10.0	1	39	7.8	0	10.9	12.1
Colored	6	12.4	1	101	10.3	0	15.8	16.3
Milwaukee	96	8.3	16	76	8.6	12	9.4	10.2
Minneapolis	114	12.4	15	98	10.7	6	11.1	11.9
Nashville [6]	44	14.7	2	30	17.4	3	15.3	17.5
White	30	13.8	2	39	13.9	2	13.9	15.2
Colored	14	17.1	0	0	26.8	1	19.1	23.6
New Bedford [7]	21	9.8	1	29	8.3	3	12.6	13.4
New Haven	29	9.3	0	0	10.3	2	13.0	12.8
New Orleans [6]	147	16.2	8	45	15.5	16	15.5	17.9
White	75	11.6	3	26	11.1	9	13.1	14.6
Colored	72	27.4	5	82	26.3	7	21.4	26.3
New York	1,350	9.8	108	48	9.7	111	11.6	12.5
Bronx Borough	204	7.7	15	43	7.4	16	8.5	9.1
Brooklyn Borough	445	8.7	44	49	8.9	46	10.8	11.5
Manhattan Borough	525	15.5	36	51	14.0	32	17.8	19.2
Queens Borough	135	5.8	6	25	6.8	12	7.4	8.1
Richmond Borough	41	12.8	7	138	13.4	5	14.6	14.4
Newark, N. J	88	10.3	6	33	8.5	6	11.5	12.8
Oakland	49	8.6	0	0	9.8	3	10.9	11.1
Oklahoma City	35	8.9	2	27	9.5	4	10.6	12.0
Omaha	37	8.8	2	23	16.8	6	13.9	14.6
Paterson	28	10.5	2	36	12.0	1	13.4	15.1
Peoria	24	11.3	3	83	10.6	2	11.9	12.9
Philadelphia	492	13.0	42	65	11.0	32	13.6	15.0
Pittsburgh	142	10.9	19	87	12.4	18	13.9	16.5
Portland, Oreg	67	11.3	4	51	9.7	2	11.9	12.3
Providence	54	11.0	9	87	11.0	2	14.5	14.4
Richmond [6]	47	13.3	2	30	15.8	5	14.5	17.1
White	30	11.8	0	0	10.3	0	11.9	14.5
Colored	17	16.8	2	92	29.6	5	20.9	23.7
Rochester	70	10.9	4	38	9.3	9	12.8	13.1
St. Louis	192	12.1	12	43	12.8	12	14.4	16.7
St. Paul	54	10.1	4	43	11.1	0	11.0	11.4
Salt Lake City [5]	23	8.3	3	47	15.0	5	11.1	12.8
San Antonio	66	14.0	17	-------	17.6	23	14.4	16.3
San Diego	33	10.6	4	87	14.7	5	15.0	14.8
San Francisco	145	11.4	3	21	12.7	7	13.1	13.7
Schenectady	10	5.4	1	29	9.8	0	11.2	11.3
Seattle	79	11.0	1	10	10.2	5	12.3	12.4
Somerville	18	8.9	1	40	6.9	0	9.9	10.6
South Bend	14	6.6	2	58	10.1	0	8.0	8.9
Spokane	35	15.6	2	53	12.6	3	12.6	12.8
Springfield, Mass	33	11.2	0	0	9.9	3	11.8	13.4
Syracuse	37	9.0	1	13	10.0	3	12.4	12.5
Tacoma	29	14.0	2	55	7.2	1	12.9	13.2

See footnotes at end of table.

Deaths [1] from all causes in certain large cities of the United States during the week ended June 11, 1932, infant mortality, annual death rate, and comparison with corresponding week of 1931. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended June 11, 1932				Corresponding week, 1931		Death rate [2] for the first 23 weeks	
	Total deaths	Death rate [2]	Deaths under 1 year	Infant mortality rate [3]	Death rate [2]	Deaths under 1 year	1932	1931
Tampa [6]	23	11.1	1	29	14.9	4	12.8	12.9
White	17	10 4	0	0	14.5	2	11.7	11.9
Colored	6	13.8	1	158	16 4	2	14.6	16.7
Toledo	75	13.0	3	33	12 3	6	12.5	13.0
Trenton	39	16.4	4	79	8.4	2	16.9	18.4
Uticia	32	16.3	2	57	14.3	2	16.7	15.7
Washington, D. C.[6]	141	14.9	11	62	14 4	10	17.4	17.2
White	92	13 5	6	49	13 3	7	15 5	14.7
Colored	49	18.7	5	89	17 4	3	22.3	23.8
Waterbury	22	11 3	0	0	8 8	3	10.0	10.4
Wilmington, Del.[7]	26	12 3	3	68	15 7	4	16.5	15.8
Worcester	57	15 0	3	42	11.6	1	13.4	14.1
Yonkers	15	5.5	2	52	9.0	0	8.3	9.5
Youngstown	22	6.6	1	16	11.8	1	10.5	11.0

[1] Deaths of nonresidents are included. Stillbirths are excluded.
[2] These rates represent annual rates per 1,000 population, as estimated for 1932 and 1931 by the arithmetical method.
[3] Deaths under 1 year of age per 1,000 estimated live births. Cities left blank are not in the registration area for births.
[4] Data for 81 cities.
[5] Deaths for week ended Friday.
[6] For the cities for which deaths are shown by color, the percentages of colored population in 1930 were as follows: Atlanta, 33; Baltimore, 18; Birmingham, 38; Dallas, 17; Fort Worth, 16; Houston, 27; Indianapolis, 12; Kansas City, Kans., 19, Knoxville, 16; Louisville, 15, Memphis, 38, Miami, 23, Nashville, 28; New Orleans, 29; Richmond, 29; Tampa, 21, and Washington, D. C., 27.
[7] Population Apr. 1, 1930; decreased 1920 to 1930, no estimate made.
[8] Figures for Hartford not shown in totals.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended June 18, 1932, and June 20, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 18, 1932, and June 20, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended June 18, 1932	Week ended June 20, 1931	Week ended June 18, 1932	Week ended June 20, 1931	Week ended June 18, 1932	Week ended June 20, 1931	Week ended June 18, 1932	Week ended June 20, 1931
New England States:								
Maine	3	2	8		114	17	0	0
New Hampshire	1			4	79	14	0	0
Vermont	5				203	15	0	0
Massachusetts	22	47	1		732	563	3	1
Rhode Island	6	8			12	117	0	0
Connecticut		1			193	207	2	0
Middle Atlantic States:								
New York	96	137	[1] 9	[1] 3	1,801	2,075	9	8
New Jersey	28	34	0	5	605	711	3	1
Pennsylvania	70	55			983	1,877	6	7
East North Central States:								
Ohio	13	17	5	5	1,027	449	1	2
Indiana	17	48	6	5	91	258	5	4
Illinois	48	116	12	3	692	1,322	7	8
Michigan	15	27	7		2,445	340	0	8
Wisconsin	12	13	4	12	934	699	0	1
West North Central States:								
Minnesota	7	15	3		68	108	0	1
Iowa	12	2			6	11	0	0
Missouri	32	14			50	96	1	2
North Dakota	1	2			64	49	0	0
South Dakota	2	4			7	3	0	0
Nebraska	8	3			2	4	0	0
Kansas	6	10	2		169	117	2	0
South Atlantic States:								
Delaware				1		53	0	0
Maryland [2]	8	17	4	3	78	364	0	1
District of Columbia	5	10			24	58	0	1
Virginia								
West Virginia	10	7	16	1	202	240	0	1
North Carolina	5	16	1	4	545	470	0	8
South Carolina	6	9	194	163	115	155	0	2
Georgia [3]	5	6	41	18	61	45	0	0
Florida [3]	19	1	6		21	27	0	0
East South Central States:								
Kentucky	7				13	92	1	0
Tennessee	7		22	12	4	96	2	3
Alabama [3]	13	13	9	3	5	69	0	9
Mississippi	4	3					1	1

[1] New York City only.
[2] Week ended Friday.
[3] Typhus fever, 22 cases: 5 cases in Georgia, 1 case in Florida, 8 cases in Alabama, and 8 cases in Texas.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 18, 1932, and June 20, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended June 18, 1932	Week ended June 20, 1931	Week ended June 18, 1932	Week ended June 20, 1931	Week ended June 18, 1932	Week ended June 20, 1931	Week ended June 18, 1932	Week ended June 20, 1931
West South Central States:								
Arkansas	1	1	19	7	1	46	0	0
Louisiana	18	25	1	4	6		0	1
Oklahoma [4]	6	3	6	7	94	15	0	0
Texas [3]	17	17	10	14	41	18	0	1
Mountain States:								
Montana		1	4		166	8	0	0
Idaho		1	1		1	4	0	0
Wyoming					30	5	0	0
Colorado	3	3			61	69	1	0
New Mexico	5	5			18	43	0	0
Arizona		4	4		5	26	0	2
Utah [2]				2		5	0	0
Pacific States:								
Washington	8	5			101	98	0	0
Oregon	10	3	19	9	157	32	0	0
California	48	63	42	23	424	502	0	3
Total	604	768	465	308	12,450	11,592	44	71

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended June 18 1932	Week ended June 20, 1931	Week ended June 18, 1932	Week ended June 20, 1931	Week ended June 18, 1932	Week ended June 20, 1931	Week ended June 18, 1932	Week ended June 20, 1931
New England States:								
Maine	0	0	32	31	0	0	1	1
New Hampshire	0	0	19	1	0	0	0	0
Vermont	0	0	15	5	6	10	0	0
Massachusetts	0	2	305	205	0	0	3	6
Rhode Island	0	0	40	27	0	0	0	1
Connecticut	3	0	73	23	0	0	1	2
Middle Atlantic States:								
New York	3	6	706	568	0	11	15	26
New Jersey	2	0	217	197	0	0	3	7
Pennsylvania	0	2	502	407	0	0	21	12
East North Central States:								
Ohio	4	0	129	169	22	23	10	7
Indiana	0	1	32	55	14	66	7	5
Illinois	3	0	286	326	9	60	21	10
Michigan	0	3	389	361	3	18	1	5
Wisconsin	2	0	57	57	1	6	1	2
West North Central States:								
Minnesota	0	1	55	40	4	6	2	3
Iowa	0	0	13	30	20	42	0	1
Missouri	0	1	17	45	2	26	5	8
North Dakota	1	1	5	6	1	3	4	3
South Dakota	0	0	7	13	1	17	2	0
Nebraska	0	0	4	7	6	18	0	0
Kansas	0	0	13	25	14	77	4	2
South Atlantic States:								
Delaware	0	0	8	1	0	0	0	0
Maryland [2]	0	0	45	29	0	0	7	6
District of Columbia	0	0	10	13	0	0	0	0
Virginia	1							
West Virginia	0	0	14	23	1	0	25	2
North Carolina	1	1	19	27	1	1	37	15
South Carolina	0	5	1	2	1	5	41	36
Georgia [3]	0	0	4	21	0	0	25	17
Florida [3]	0	0	3	6	0	0	1	2
East South Central States:								
Kentucky	0	0	32	35	6	0	22	5
Tennessee	0	0	12	8	1	1	54	14
Alabama [3]	0	1	8	6	3	8	12	18
Mississippi	3	3	2	8	8	22	31	15

[2] Week ended Friday.
[3] Typhus fever 22 cases: 5 cases in Georgia, 1 case in Florida, 8 cases in Alabama, and 8 cases in Texas.
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 18, 1932, and June 20, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended June 18, 1932	Week ended June 20, 1931	Week ended June 18, 1932	Week ended June 20, 1931	Week ended June 18, 1932	Week ended June 20, 1931	Week ended June 18, 1932	Week ended June 20, 1931
West South Central States:								
Arkansas	0	0	1	6	3	14	12	10
Louisiana	1	0	2	5	0	9	24	17
Oklahoma [4]	0	2	11	10	10	67	13	5
Texas [3]	1	1	13	16	17	20	10	32
Mountain States:								
Montana	0	1	10	9	15	3	0	5
Idaho	0	0	0	15	0	5	2	0
Wyoming	0	0	3	1	0	0	1	0
Colorado	0	0	24	12	0	33	1	1
New Mexico	0	0	1	3	0	1	4	2
Arizona	0	0	2	1	0	1	2	3
Utah [2]	1	0	0	3	0	0	0	0
Pacific States:								
Washington	2	0	17	14	16	17	3	8
Oregon	0	0	3	7	8	11	6	3
California	2	6	126	76	5	12	16	7
	30	37	3,287	2,955	198	613	450	319

[2] Week ended Friday.
[3] Typhus fever, 22 cases: 5 cases in Georgia, 1 case in Florida, 8 cases in Alabama, and 8 cases in Texas.
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
May, 1932										
Arizona	4	16	16		5	1	0	24	0	2
Dist. of Columbia	4	30	5		86		1	95	0	2
Indiana	18	91	89		602	1	0	369	31	8
Iowa	8	39		[1] 1	21		0	158	119	12
Maryland	3	46	44	1	251		1	377	0	15
Massachusetts	7	135	14	1	4,468	3	2	1,971	0	13
New Jersey	6	134	55	1	4,253		5	1,313	0	7
Ohio	8	115	118	1	10,802		4	1,471	61	16
Pennsylvania	33	816			7,814	1	3	3,231	0	25
Tennessee	11	29	344	85	85	72	2	87	56	37
Vermont		2			1,355		0	53	26	1

[1] Delayed report.

May, 1932

	Cases
Anthrax:	
New Jersey	1
Pennsylvania	1
Chicken pox:	
Arizona	64
District of Columbia	172
Indiana	389
Iowa	136
Maryland	612
Massachusetts	938
New Jersey	1,115
Ohio	1,833
Pennsylvania	2,357
Chicken pox—Continued.	
Tennessee	187
Vermont	111
Conjunctivitis (infectious):	
Iowa	2
Diarrhea:	
Maryland	11
Diarrhea and enteritis (under 2 years):	
Ohio	10
Dysentery:	
Arizona	1
Maryland	7
New Jersey	1
Pennsylvnia	3
Tennessee	28

Disease / State	Cases
Food poisoning:	
Ohio	3
German measles:	
Iowa	38
Maryland	27
Massachusetts	100
New Jersey	76
Ohio	20
Pennsylvania	140
Tennessee	251
Hookworm disease:	
Maryland	1
Impetigo contagiosa:	
Maryland	8
Jaundice:	
Maryland	1
Lead poisoning:	
Massachusetts	1
New Jersey	1
Ohio	21
Leprosy:	
Arizona	1
Lethargic encephalitis:	
Massachusetts	2
Ohio	1
Pennsylvania	2
Tennessee	1
Mumps:	
Arizona	5
Indiana	729
Iowa	126
Maryland	659
Massachusetts	1,387
New Jersey	1,625
Ohio	859
Pennsylvania	2,705
Tennessee	60
Vermont	583
Ophthalmia neonatorum:	
Maryland	1
Massachusetts	170
New Jersey	6
Ohio	64
Pennsylvania	4
Tennessee	1
Paratyphoid fever:	
Massachusetts	1
Ohio	2
Tennessee	2
Puerperal septicemia:	
Ohio	5
Pennsylvania	24
Tennessee	1
Rabies in animals:	
Maryland	2
New Jersey	56
Rabies in man:	
Pennsylvania	1
Scabies:	
Maryland	1
Septic sore throat:	
Maryland	7
Massachusetts	19
Ohio	153
Tetanus:	
Maryland	4
Massachusetts	3
New Jersey	2
Ohio	5
Pennsylvania	3
Trachoma:	
Arizona	17
Indiana	6
Massachusetts	2
New Jersey	53
Ohio	3
Tennessee	64
Trichinosis:	
Ohio	1
Tularaemia:	
Iowa	1
Ohio	1
Tennessee	2
Undulant fever:	
Arizona	1
Indiana	4
Iowa	5
Maryland	5
Massachusetts	1
New Jersey	3
Ohio	4
Pennsylvania	8
Vermont	1
Vincent's angina:	
Iowa	3
Maryland	11
Tennessee	1
Whooping cough:	
Arizona	37
District of Columbia	88
Indiana	356
Iowa	70
Maryland	564
Massachusetts	815
New Jersey	1,017
Ohio	1,724
Pennsylvania	2,568
Tennessee	303
Vermont	89

RECIPROCAL NOTIFICATIONS

Notifications regarding communicable diseases sent during the month of May, 1932, by departments of health of States named to other State health departments

Disease	California	Connecticut	Illinois	Massachusetts	Minnesota	New York	Oregon
Chicken pox	1						
Influenza				1			
Lethargic encephalitis				1			
Malaria				1			
Scarlet fever	3	1				1	
Tuberculosis	3		5	1	20	1	8
Undulant fever					1		

PATIENTS IN INSTITUTIONS FOR FEEBLE-MINDED, OCTOBER–DECEMBER, 1930

Reports for the fourth quarter of the year 1930 were received by the Public Health Service from 34 institutions for the care of the feeble-minded, located in 26 States and the Territory of Hawaii. The total number of persons in these institutions on December 31, 1930, including those on temporary leave or otherwise absent but still on the books, was 42,512.

The first admissions were as follows:

	Male	Female	Total
October	225	173	398
November	253	156	409
December	195	126	321
Total	673	455	1,128

Of the first admissions during the three months, 59.7 per cent were males and 40.3 per cent females, the ratio being 148 males per 100 females. Three hundred and two male patients and 221 female patients were discharged during the three months. One hundred and thirty-two male patients and 91 female patients died. The annual death rates, based on the number of patients on the books December 31, 1930, were: Males, 23.6 per 1,000; females, 17.7 per 1,000; and both sexes, 20.8 per 1,000.

The following table shows the number of patients in the institutions and on temporary leave on October 1, 1930, and at the end of each month of the fourth quarter of the year and the percentages of the number of patients who were on leave.

	Oct. 1, 1930	Oct. 31, 1930	Nov. 30, 1930	Dec. 31, 1930
Patients in institutions:				
Male	18, 547	18, 707	18, 837	18, 508
Female	17, 839	17, 954	18, 039	17, 882
Total	36, 386	36, 661	36, 876	36, 390
Patients on temporary leave:				
Male	3, 346	3, 289	3, 270	3, 636
Female	2, 350	2, 335	2, 292	2, 486
Total	5, 696	5, 624	5, 562	6, 122
Total patients on books:				
Male	21, 893	21, 996	22, 107	22, 144
Female	20, 189	20, 289	20, 331	20, 368
Total	42, 082	42, 285	42, 438	42, 512
Per cent of patients on temporary leave:				
Male	15. 3	15 0	14 8	16 4
Female	11. 6	11. 5	11. 3	12 2
Total	13. 5	13 3	13 1	14. 4

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 96 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 33,900,000. The estimated population of the 89 cities reporting deaths is more than 32,350,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended June 11, 1932, and June 13, 1931

	1932	1931	Estimated expectancy
Cases reported			
Diphtheria:			
46 States	648	729	
96 cities	271	344	648
Measles:			
45 States	17, 173	14, 989	
96 cities	5, 543	5, 614	
Meningococcus meningitis:			
46 States	52	74	
96 cities	21	33	
Poliomyelitis:			
46 States	28	38	
Scarlet fever:			
46 States	3, 803	3, 575	
96 cities	1, 804	1, 712	1, 062
Smallpox:			
46 States	192	794	
96 cities	20	67	52
Typhoid fever:			
46 States	391	285	
96 cities	45	48	46
Deaths reported			
Influenza and pneumonia:			
89 cities	476	480	
Smallpox:			
89 cities	0	0	

City reports for week ended June 11, 1932

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded, and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1923 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	3	0	0	1	0	4	1	1
New Hampshire:								
Concord	0	0	0		0	2	0	1
Manchester	0	0	0		0	0	0	1
Nashua	0	0	0		0	0	0	0
Vermont:								
Barre	0	0	0		0	0	0	0
Burlington	0	0	0		0	0	0	0
Massachusetts:								
Boston	77	23	12		0	207	90	18
Fall River	7	2	1		0	49	0	0
Springfield	16	2	0		0	150	9	1
Worcester	8	3	2		0	22	7	5
Rhode Island:								
Pawtucket	0	0	0		0	0	0	0
Providence	7	4	19		0	0	7	5
Connecticut:								
Bridgeport	2	4	0		0	54	0	0
Hartford	3	3	0		0	3	4	2
New Haven	24	0	1		0	0	13	4
MIDDLE ATLANTIC								
New York:								
Buffalo	58	8	1		0	69	2	11
New York	348	212	59	9	6	732	222	125
Rochester	10	4	1		0	15	4	8
Syracuse	26	0	0		0	129	20	2
New Jersey:								
Camden	1	5	3		0	0	0	3
Newark	58	12	1	1	1	93	240	5
Trenton	3	2	0		0	2	3	0
Pennsylvania:								
Philadelphia	115	50	2	8	8	7	91	33
Pittsburgh	54	13	4	1	1	139	12	20
Reading	0	1	0		0	2	0	1
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	5	4	1		0	3	0	6
Cleveland	56	20	4	3	0	333	49	9
Columbus	8	2	0		0	74	3	2
Toledo	20	3	0		0	120	0	2
Indiana:								
Fort Wayne	3	1	3		0	0	0	0
Indianapolis	24	2	1		0	5	100	3
South Bend	8	1	0		0	7	0	1
Terre Haute	3	0	0		0	86	0	3
Illinois:								
Chicago	194	80	35	2	0	408	23	29
Springfield		1						
Michigan:								
Detroit	86	37	8	4	0	1,154	81	14
Flint	15	1	1	4	0	51	27	1
Grand Rapids	10	0	0		0	20	21	2
Wisconsin:								
Kenosha	1	0	0		0	332	0	0
Madison	3	0	0			1	1	
Milwaukee	72	10	3		0	570	15	6
Racine	21	1	0		0	66	28	0
Superior	1	0	0		0	0	0	0

City reports for week ended June 11, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
WEST NORTH CENTRAL								
Minnesota:								
Duluth	5	0	0	----------	0	0	4	1
Minneapolis	17	9	5	----------	1	12	22	0
St. Paul	48	4	1	----------	0	2	24	1
Iowa:								
Davenport	2	1	0	----------	----------	2	3	----------
Des Moines	0	0	3	----------	----------	0	0	----------
Sioux City	2	0	0	----------	----------	0	2	----------
Waterloo	3	0	0	----------	----------	0	1	----------
Missouri:								
Kansas City	8	2	1	----------	0	26	1	8
St. Joseph	0	0	4	----------	0	1	0	3
St. Louis	24	27	15	----------	----------	8	3	4
North Dakota:								
Fargo	12	0	0	----------	0	7	0	1
Grand Forks	1	0	0	----------	----------	13	0	----------
South Dakota:								
Aberdeen	5	0	0	----------	----------	0	0	----------
Sioux Falls	0	0	0	----------	----------	0	0	----------
Nebraska:								
Omaha	9	2	4	----------	0	2	2	2
Kansas:								
Topeka	22	0	0	----------	0	34	1	2
Wichita	1	1	1	----------	0	1	2	2
SOUTH ATLANTIC								
Delaware:								
Wilmington	1	2	0	----------	0	1	0	5
Maryland:								
Baltimore	86	15	3	1	3	7	122	11
Cumberland	0	0	0	2	0	13	0	1
Frederick	0	0	0	----------	0	1	0	0
District of Columbia:								
Washington	40	9	1	1	1	18	0	5
Virginia:								
Lynchburg	4	1	0	----------	0	0	0	2
Norfolk	3	0	0	----------	0	3	1	3
Richmond	0	1	1	----------	0	0	0	3
Roanoke	1	0	0	----------	0	0	0	0
West Virginia:								
Charleston	1	0	0	----------	0	9	0	1
Huntington	0	----------	0	----------	0	6	0	0
Wheeling	3	0	0	----------	0	79	0	1
North Carolina:								
Raleigh	1	0	1	----------	0	0	0	2
Wilmington	8	0	0	----------	0	0	0	0
Winston-Salem	6	0	0	----------	0	74	1	1
South Carolina:								
Charleston	0	0	2	17	1	0	0	2
Columbia	3	0	0	----------	1	22	0	3
Greenville	0	0	0	----------	0	21	0	0
Georgia:								
Atlanta	6	1	2	7	0	4	0	10
Brunswick	0	0	0	----------	0	0	0	0
Savannah	0	0	0	28	0	33	0	2
Florida:								
Miami	0	1	0	----------	0	1	0	0
Tampa	1	0	4	----------	0	0	0	0
EAST SOUTH CENTRAL								
Kentucky:								
Covington	----------	0	----------	----------	----------	----------	----------	----------
Lexington	0	----------	0	----------	0	0	0	1
Tennessee:								
Memphis	8	1	0	----------	0	----------	0	3
Nashville	3	0	1	----------	0	1	0	0
Alabama:								
Birmingham	4	0	0	2	0	2	3	1
Mobile	0	1	0	----------	1	0	0	0
Montgomery	0	0	0	1	----------	1	1	----------

City reports for week ended June 11, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith	0	0	0			0	0	
Little Rock	0	0	0		0	0	0	1
Louisiana:								
New Orleans	2	7	18	2	0	0	0	5
Shreveport	0	0	0		0	3	7	3
Oklahoma:								
Muskogee	0		0		0	2	0	0
Oklahoma City	0	0	0		1	17	0	6
Texas:								
Dallas	2	2	5		0	5	0	8
Fort Worth	2	1	1		0	0	0	4
Galveston	0	0	0		0	0	0	0
Houston	0	2	4		0	14	0	4
San Antonio	0	2	0		0	0	0	7
MOUNTAIN								
Montana:								
Billings	0	0	0		0	0	0	0
Great Falls	0	0	0		0	0	0	0
Helena	11	0	0		0	0	0	0
Missoula	0	0	0		0	0	0	0
Idaho:								
Boise	0	0	0		0	1	0	0
Colorado:								
Denver	23	5	5		0	53	33	5
Pueblo	8	1	0		0	0	0	0
New Mexico:								
Albuquerque	0	0	0		0	8	2	0
Arizona:								
Phoenix	0		0		0	0	0	0
Utah:								
Salt Lake City	44	3	0		0	0	16	0
Nevada:								
Reno	0	0	0		0	0	0	1
PACIFIC								
Washington:								
Seattle	21	2	7			33	3	
Spokane	9	3	0			26	0	
Tacoma	3	2	0		0	70	3	5
Oregon:								
Portland	2	4	2	1	1	85	3	3
Salem	0	1	0		0	1	1	0
California:								
Los Angeles	94	25	21	28	1	26	26	10
Sacramento	33	1	0		0	6	1	1
San Francisco	42	10	3	1	0	160	4	3

City reports for week ended June 11, 1932—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND											
Maine:											
Portland	2	4	0	0	0	0	0	0	0	7	26
New Hampshire:											
Concord	0	4	0	0	0	0	0	0	0	0	8
Manchester	1	7	0	0	0	4	0	0	0	0	84
Nashua	0	0	0	0	0	0	0	0	0	0	------
Vermont:											
Barre	1	0	0	0	0	1	0	0	0	0	2
Burlington	0	0	0	0	0	0	0	0	0	0	10
Massachusetts:											
Boston	63	82	0	0	0	11	1	1	0	38	218
Fall River	3	8	0	0	0	1	0	0	0	1	24
Springfield	7	7	0	0	0	1	0	0	0	5	34
Worcester	9	23	0	0	0	1	1	2	0	13	57
Rhode Island:											
Pawtucket	2	0	0	0	0	0	0	0	0	0	15
Providence	9	15	0	0	0	2	0	0	0	5	54
Connecticut:											
Bridgeport	6	6	0	0	0	2	0	0	0	3	28
Hartford	3	8	0	0	0	0	0	0	0	1	18
New Haven	3	14	0	0	0	1	0	0	0	7	29
MIDDLE ATLANTIC											
New York:											
Buffalo	20	37	0	0	0	10	0	0	0	29	125
New York	197	493	0	0	0	81	9	1	0	158	1,350
Rochester	7	38	0	0	0	2	0	0	0	4	68
Syracuse	8	21	0	0	0	2	0	0	0	47	37
New Jersey:											
Camden	5	12	0	0	0	0	0	0	0	0	34
Newark	20	15	0	0	0	5	0	0	0	36	91
Trenton	2	10	0	0	0	6	0	0		2	39
Pennsylvania:											
Philadelphia	80	158	0	0	0	40	2	9	1	65	492
Pittsburgh	29	51	0	0	0	12	0	0	0	31	142
Reading	3	17	0	0	0	0	0	0	0	8	17
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	17	22	2	0	0	13	1	0	0	9	125
Cleveland	36	74	1	0	0	9	1	0	0	81	165
Columbus	6	8	1	2	0	3	0	0	0	26	87
Toledo	12	4	1	0	0	5	0	2	0	54	75
Indiana:											
Fort Wayne	2	2	1	0	0	1	0	1	0	7	22
Indianapolis	11	8	6	0	0	6	0	0	0	20	--------
South Bend	4	4	1	0	0	0	0	0	0	0	14
Terre Haute	2	0	1	0	0	1	0	0	0	0	17
Illinois:											
Chicago	102	178	1	0	0	47	2	1	0	116	590
Springfield	3	-------	1	-------	-------	-------	0	-------	-------	-------	-------
Michigan:											
Detroit	100	238	1	0	0	27	2	0	0	145	245
Flint	12	5	2	0	0	1	0	0	0	25	22
Grand Rapids	8	8	1	0	0	0	1	0	0	10	28
Wisconsin:											
Kenosha	1	4	0	0	0	1	0	0	0	2	5
Madison	8	3	0	0	-------	-------	0	0	-------	13	-------
Milwaukee	26	37	0	0	0	2	0	0	0	79	96
Racine	1	0	0	0	0	0	0	0	0	0	10
Superior	2	1	0	0	0	0	0	0	0	7	8

City reports for week ended June 11, 1932—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST NORTH CENTRAL											
Minnesota:											
Duluth	6	4	0	0	0	1	0	0	0	0	32
Minneapolis	24	21	0	0	0	6	0	1	0	31	114
St. Paul	15	6	0	0	0	1	0	1	0	44	57
Iowa:											
Davenport	0	4	4	3			0	0		0	
Des Moines	5	8	3	1			0	0		0	22
Sioux City	2	1	1	3			0	0		2	
Waterloo	1	0	0	0			0	0		2	
Missouri:											
Kansas City	9	12	0	0	0	5	1	0	0	10	96
St. Joseph	1	1	0	0	0	1	0	0	0	5	18
St. Louis	47	6	2	0	0	12	2	1	0	12	192
North Dakota:											
Fargo	0	1	0	0	0	0	0	0	0	0	4
Grand Forks	0	0	1	0			0	0		0	
South Dakota:											
Aberdeen	1	0	0	0			0	0		0	
Sioux Falls	1	0	1	0			0	0		0	6
Nebraska:											
Omaha	3	2	4	7	0	1	0	0	0	0	37
Kansas:											
Topeka	1	0	0	0	0	1	0	0	0	56	10
Wichita	1	0	1	0	0	0	1	0	0	2	28
SOUTH ATLANTIC											
Delaware:											
Wilmington	3	3	0	0	0	1	0	0	0	7	2
Maryland:											
Baltimore	30	29	0	0	0	20	1	3	0	98	211
Cumberland	0	3	0	0	0	1	0	0	0	1	15
Frederick	0	0	0	0	0	0	0	0	0	0	2
District of Columbia:											
Washington	17	12	0	0	0	19	1	2	0	18	141
Virginia:											
Lynchburg	0	0	0	0	0	0	0	0	0	34	14
Norfolk	1	0	0	0	0	5	0	0	0	4	28
Richmond	2	2	0	0	0	3	0	0	0	1	46
Roanoke	0	1	0	0	0	1	0	0	0	3	13
West Virginia:											
Charleston	0	3	0	0	0	0	0	1	0	2	13
Huntington		0		0	0	0		0	0	0	
Wheeling	1	0	0	0	0	0	0	0	0	14	6
North Carolina:											
Raleigh	0	0	0	0	0	0	0	0	0	10	16
Wilmington	0	0	0	0	0	0	0	0	0	7	9
Winston-Salem	1	4	0	0	0	0	0	1	0	26	10
South Carolina:											
Charleston	0	0	0	0	0	3	0	2	0	0	32
Columbia	0	0	0	0	0	3	1	0	0	1	19
Greenville	0	0	0	0	0	0	0	0	0	2	
Georgia:											
Atlanta	4	3	3	0	0	4	1	3	1	10	87
Brunswick	0	1	0	0	0	0	1	0	0	0	1
Savannah	0	0	0	0	0	1	1	2	0	0	27
Florida:											
Miami	0	0	0	0	0	1	0	0	0	0	28
Tampa	0	0	0	0	0	0	0	0	0	0	23
EAST SOUTH CENTRAL											
Kentucky:											
Covington	2		0				0				
Lexington		0		0	0	1		0	0	0	11
Tennessee:											
Memphis	4	2	1	0	0	8	2	1	0	16	91
Nashville	2	0	1	0	0	1	1	0	0	12	44
Alabama:											
Birmingham	1	3	2	0	0	4	0	1	1	16	57
Mobile	0	1	1	1	0	0	0	0	0	0	22
Montgomery	0	0	1	0			0	0		0	

City reports for week ended June 11, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	0	0	0			0	0		0	
Little Rock	1	0	0	0	0	3	0	0	0	0	4
Louisiana:											
New Orleans	5	4	0	1	0	11	3	2	1	0	147
Shreveport	0	1	1	0	0	3	1	1	3	4	40
Oklahoma:											
Muskogee		1		0	0	0		0	0	0	
Oklahoma City	1	3	2	0	0	1	1	2	0	0	35
Texas.											
Dallas	2	1	2	0	0	2	1	0	0	16	52
Fort Worth	2	1	1	3	0	1	0	0	0	0	35
Galveston	0	0	0	0	0	0	0	0	0	0	9
Houston	2	1	1	0	0	8	1	0	0	0	79
San Antonio	1	0	0	0	0	8	1	0	0	0	66
MOUNTAIN											
Montana:											
Billings	1	0	0	0	0	0	0	0	0	0	5
Great Falls	1	0	0	0	0	0	0	0	0	0	2
Helena	0	0	0	0	0	0	0	0	0	0	9
Missoula	0	1	0	0	0	0	0	0	0	0	6
Idaho:											
Boise	0	0	0	0	0	0	0	0	0	0	6
Colorado:											
Denver	8	17	0	0	0	6	0	0	0	30	53
Pueblo	0	0	0	0	0	2	0	0	0	2	5
New Mexico:											
Albuquerque	0	1	0	0	0	5	0	0	0	0	12
Arizona:											
Phoenix	0	0	0	0	0	1	0	0	0	0	
Utah:											
Salt Lake City	2	4	0	0	0	1	1	0	0	8	23
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	4
PACIFIC											
Washington:											
Seattle	7	6	1	3			0	4		7	
Spokane	3	0	5	3			0	0		7	
Tacoma	3	3	2	0	0	0	0	0	0	1	29
Oregon:											
Portland	3	0	7	1	0	2	0	1	0	2	67
Salem	0	0	1	0	0	0		0	0	3	
California:											
Los Angeles	24	32	5	0	0	17	2	2	0	70	257
Sacramento	2	1	0	0	0	5	1	0	0	1	
San Francisco	16	0	0	0	0	9	2	2	0	21	145

Division, State, and city	Meningococcus meningitis: Cases	Meningococcus meningitis: Deaths	Lethargic encephalitis: Cases	Lethargic encephalitis: Deaths	Pellagra: Cases	Pellagra: Deaths	Poliomyelitis (infantile paralysis): Cases, estimated expectancy	Poliomyelitis (infantile paralysis): Cases	Poliomyelitis (infantile paralysis): Deaths
NEW ENGLAND									
Massachusetts:									
Boston [1]	4	3	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
Buffalo	2	1	0	0	0	0	0	0	0
New York [1]	4	2	1	0	0	0	1	1	0
Pennsylvania:									
Philadelphia	1	3	0	0	0	0	0	0	0
Pittsburgh	0	0	1	1	0	0	0	0	0

City reports for week ended June 11, 1932—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cleveland	1	1	0	0	0	0	0	0	0
Columbus	0	0	2	2	0	0	0	0	0
Illinois.									
Chicago	3	1	0	0	0	0	0	0	0
Michigan:									
Detroit	0	0	1	0	0	0	0	0	0
Flint	0	0	0	0	0	0	0	1	0
WEST NORTH CENTRAL									
Missouri:									
St. Joseph	1	0	0	0	0	0	0	0	0
St. Louis	1	0	0	0	0	0	0	0	0
Nebraska:									
Omaha	0	0	0	0	0	0	0	1	0
SOUTH ATLANTIC [1]									
Maryland									
Baltimore	0	0	0	0	1	0	1	0	0
District of Columbia.									
Washington	1	0	0	0	0	0	0	1	0
North Carolina.									
Raleigh	0	0	0	0	0	2	0	0	0
Winston-Salem	0	0	0	0	3	0	0	0	0
South Carolina:									
Charleston	0	0	0	0	1	1	0	0	0
Columbia	0	1	0	0	0	0	0	0	0
Georgia:									
Savannah [1]	0	0	0	0	1	0	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis	0	0	0	0	2	2	0	0	0
Alabama.									
Birmingham	0	0	0	0	0	1	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	0	0	0	0	2	0	0	0	0
Louisiana:									
New Orleans	0	0	0	0	1	1	0	0	0
Oklahoma									
Muskogee	0	0	0	0	1	0	--------	0	0
Texas									
Galveston	0	0	0	0	0	1	0	0	0
Houston	0	1	0	0	0	0	0	0	1
San Antonio	0	0	0	0	0	1	0	7	0
MOUNTAIN									
Colorado:									
Denver	1	0	0	0	0	0	0	0	0
Pueblo	0	0	0	0	0	1	0	0	0
Utah:									
Salt Lake City	1	0	0	0	0	0	0	0	0
PACIFIC									
Oregon:									
Portland	1	2	0	0	0	0	0	0	0
California:									
Los Angeles	1	1	0	0	0	0	1	1	0

[1] Typhus fever, 5 cases: 1 case at Boston, Mass. 1 case at New York City, N. Y.; 2 cases at Savannah, Ga.; and 1 case at Tampa, Fla.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended June 11, 1932, compared with those for a like period ended June 13, 1931. The population figures used in computing the rates are estimated mid-year populations for 1931 and 1932, respectively, derived from the 1930 census. The 98 cities reporting cases have an estimated aggregate population of more than 34,000,000. The 91 cities reporting deaths have more than 32,400,000 estimated population.

Summary of weekly reports from cities, May 8 to June 11, 1932—Annual rates per 100,000 population, compared with rates for the corresponding period of 1931 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	May 14, 1932	May 16, 1931	May 21, 1932	May 23, 1931	May 28, 1932	May 30, 1931	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931
98 cities	44	63	39	62	[2] 48	59	[3] 45	67	[4] 42	54
New England	48	38	41	48	55	50	46	46	84	41
Middle Atlantic	42	58	14	63	43	58	46	74	31	55
East North Central	32	72	36	67	36	81	35	75	[5] 34	64
West North Central	55	71	83	75	66	54	57	55	59	61
South Atlantic	29	55	33	38	25	42	27	40	27	49
East South Central	40	18	12	12	[3] 6	18	[3] 31	12	[3] 6	18
West South Central	92	81	96	81	135	54	59	68	89	27
Mountain	26	61	52	61	[6] 36	52	26	101	43	35
Pacific	69	74	86	73	67	37	80	49	59	53

MEASLES CASE RATES

	May 14, 1932	May 16, 1931	May 21, 1932	May 23, 1931	May 28, 1932	May 30, 1931	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931
98 cities	1,157	1,403	1,137	1,373	[2] 1,022	1,115	[3] 826	1,096	[4] 855	876
New England	1,196	1,166	951	1,190	1,376	935	1,124	933	1,177	601
Middle Atlantic	487	1,486	534	1,479	557	1,188	413	1,102	525	869
East North Central	2,962	1,311	2,908	1,457	2,379	1,302	1,952	1,445	[5] 1,868	1,303
West North Central	254	1,397	188	1,098	176	641	172	817	176	448
South Atlantic	569	3,371	498	2,845	490	2,093	333	1,476	512	1,104
East South Central	12	1,245	6	1,245	[3] 12	1,057	[3] 187	1,151	[3] 25	828
West South Central	30	166	46	271	40	294	49	254	73	149
Mountain	1,069	531	844	618	[6] 562	461	957	870	465	705
Pacific	763	555	664	457	748	492	522	512	611	580

SCARLET FEVER CASE RATE

	May 14, 1932	May 16, 1931	May 21, 1932	May 23, 1931	May 28, 1932	May 30, 1931	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931
98 cities	437	389	384	368	[2] 397	306	[3] 302	310	[4] 278	269
New England	647	666	693	536	645	351	546	414	410	291
Middle Atlantic	709	439	570	442	566	305	418	355	377	318
East North Central	385	453	354	412	428	437	338	422	[5] 354	386
West North Central	195	383	188	341	174	291	135	258	102	168
South Atlantic	243	243	208	241	194	239	147	198	120	123
East South Central	17	341	17	394	[3] 56	300	[3] 6	153	[3] 37	170
West South Central	23	108	49	85	53	51	43	41	23	88
Mountain	147	157	148	270	[6] 187	165	103	104	190	96
Pacific	135	123	162	88	145	110	97	86	80	80

See footnotes at end of table.

Summary of weekly reports from cities, May 8 to June 11, 1932—Annual rates per 100,000 population, compared with rates for the corresponding period of 1931 [1]—Continued

SMALLPOX CASE RATES

	Week ended—									
	May 14, 1932	May 16, 1931	May 21, 1932	May 23, 1931	May 28, 1932	May 30, 1931	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931
98 cities	5	17	7	16	[2] 5	15	[3] 5	14	[4] 3	10
New England	0	0	0	0	0	0	0	0	0	0
Middle Atlantic	0	1	0	4	0	1	0	0	0	1
East North Central	4	23	3	15	0	11	2	16	[5] 1	12
West North Central	21	75	23	67	23	88	28	43	19	36
South Atlantic	0	6	0	6	2	24	0	18	0	0
East South Central	17	12	35	41	[3] 37	6	[3] 31	18	[3] 6	23
West South Central	7	41	20	47	0	37	7	41	3	24
Mountain	17	17	61	9	[6] 0	26	0	26	0	17
Pacific	11	25	17	12	21	12	17	33	11	25

TYPHOID FEVER CASE RATES

	May 14, 1932	May 16, 1931	May 21, 1932	May 23, 1931	May 28, 1932	May 30, 1931	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931
98 cities	6	5	8	6	[2] 8	7	[3] 7	6	[4] 7	7
New England	12	5	10	2	0	2	5	2	7	0
Middle Atlantic	4	5	5	5	4	8	3	5	4	7
East North Central	2	2	4	5	8	2	5	1	[5] 1	4
West North Central	9	6	9	10	2	4	2	10	6	4
South Atlantic	8	12	25	12	18	22	16	20	27	14
East South Central	0	18	6	18	[3] 31	12	[3] 31	18	[3] 12	18
West South Central	16	7	10	7	3	7	10	10	10	24
Mountain	9	0	9	0	[6] 9	17	9	17	0	9
Pacific	4	0	10	8	19	2	17	4	15	12

INFLUENZA DEATH RATES

	May 14, 1932	May 16, 1931	May 21, 1932	May 23, 1931	May 28, 1932	May 30, 1931	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931
91 cities	9	8	7	7	[2] 5	7	[3] 5	6	[4] 4	4
New England	7	2	0	5	0	10	5	2	0	0
Middle Atlantic	9	7	7	5	4	3	3	5	7	4
East North Central	8	5	5	5	6	5	3	2	[5] 0	4
West North Central	6	9	20	3	3	9	6	6	3	6
South Atlantic	8	16	6	4	14	18	14	14	12	6
East South Central	44	51	6	19	[3] 14	19	[3] 14	38	[3] 7	13
West South Central	7	7	24	28	3	14	10	10	0	3
Mountain	9	9	0	26	[6] 0	17	0	0	0	0
Pacific	7	7	0	0	5	5	2	7	2	5

PNEUMONIA DEATH RATES

	May 14, 1932	May 16, 1931	May 21, 1932	May 23, 1931	May 28, 1932	May 30, 1931	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931
91 cities	103	102	98	95	[2] 86	101	[3] 77	86	[4] 73	75
New England	98	113	125	72	101	111	91	120	89	60
Middle Atlantic	130	121	109	121	97	109	83	102	92	88
East North Central	91	73	86	68	66	75	60	59	[5] 46	60
West North Central	102	109	105	97	105	133	67	138	70	71
South Atlantic	120	127	102	111	116	133	98	77	96	83
East South Central	63	127	75	121	[3] 61	185	[3] 95	76	[3] 27	146
West South Central	57	114	77	97	71	128	84	86	94	79
Mountain	69	78	131	70	[6] 107	70	129	87	52	70
Pacific	53	55	46	55	51	43	53	48	44	43

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1932, and 1931, respectively.
[2] Covington, Ky., and Reno, Nev., not included.
[3] Covington, Ky., not included.
[4] Springfield, Ill., and Covington, Ky., not included.
[5] Springfield, Ill., not included.
[6] Reno, Nev., not included.

FOREIGN AND INSULAR

CANADA

Quebec Province—Communicable diseases—Week ended June 4, 1932.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended June 4, 1932, as follows:

Disease	Cases	Disease	Cases
Chicken pox	68	Poliomyelitis	1
Diphtheria	31	Scarlet fever	85
Erysipelas	10	Tuberculosis	119
German measles	5	Typhoid fever	166
Measles	79	Whooping cough	44

Ontario—Communicable diseases—Comparative—Four weeks ended May 28, 1932.—The Department of Health of the Province of Ontario, Canada, reports certain communicable diseases for the four weeks ended May 28, 1932, and the corresponding period of 1931, as follows:

Disease	4 weeks, 1932		4 weeks, 1931	
	Cases	Deaths	Cases	Deaths
Cerebrospinal meningitis	5	2	3	1
Chicken pox	613		1,081	
Conjunctivitis	10		1	
Diphtheria	86	4	157	10
Dysentery				1
Erysipelas	18	2		
German measles	75		195	
Gonorrhea	143		256	
Influenza	25	12	12	5
Jaundice	1			
Measles	5,835	9	1,222	1
Mumps	1,096		454	
Paratyphoid fever	2		18	1
Pneumonia		136		165
Poliomyelitis	1		3	1
Puerperal septicemia		3		
Scarlet fever	274	1	831	3
Septic sore throat	6	2		
Smallpox	24		32	
Syphilis	129	2	248	
Tetanus		1		
Trench mouth	1			
Tuberculosis	235	52	175	77
Typhoid fever	19	2	34	3
Undulant fever	8		7	
Whooping cough	464		437	6

MEXICO

Tampico—Communicable diseases—May, 1932.—During the month of May, 1932, certain communicable diseases were reported in Tampico, Mexico, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria	2		Measles	18	
Enteritis, various	48	44	Paratyphoid fever		3
Influenza	76		Tuberculosis	34	17
Leprosy	1		Typhoid fever	2	
Malaria	509	8	Whooping cough	52	

POLAND

Typhus fever.—According to information dated May 25, 1932, there was an epidemic of typhus fever in the Vilna district of Poland. The disease was prevalent in the county of Dzisna, and had recently broken out in the county of Molodeczno, where 23 new cases had been reported. Preventive measures had been successful in the counties of Braslaw, Swieciany, and Oszmiana, where only 6 cases had been reported. In the county of Wolozyn, 150 new cases, with 20 deaths, were reported. This county was said to be the central point of the epidemic. Energetic relief measures were being taken by antityphus squads, assisted by military physicians. The disease was said to be prevalent in the districts of Soviet Russia bordering on Molodeczno County. The Polish Public Health Service reported 106 cases of typhus fever for the period May 8–14, 1932.

VIRGIN ISLANDS

Notifiable diseases—May, 1932.—During the month of May, 1932, cases of certain diseases were reported in the Virgin Islands as follows:

Disease	Cases	Disease	Cases
St. Thomas and St. John:		St. Croix:	
Chicken pox	1	Gonorrhea	2
Pellagra	1	Pellagra	2
Syphilis	4	Syphilis	2
Tuberculosis	2	Tuberculosis	5
Uncinariasis	1	Whooping cough	8

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place		Nov. 15–Dec. 12, 1932	Dec. 13 1931–Jan. 9, 1932	Jan. 10–Feb 6, 1932	Feb. 7–Mar. 5, 1932	Week ended— March, 1932: 12	19	26	April, 1932: 2	9	16	23	30	May, 1932: 7	14	21	28	June 4, 1932
Ceylon: Colombo	C	3																
	D	3																
China:																		
Canton	C	3				1			1			1				1	1	
Hankow	C	14	2	1	1							3			8			
	D	6	1									1			3			
Shanghai	C													11	11	8	40	92
	D														1	1	1	10
Swatow	C		1															
India	C	14,314	14,889	10,001	5,826	1,210	1,164	1,148	1,430	1,519	1,432	1,709						
	D	7,467	7,684	5,267	2,788	587	547	564	660	780	719	863						
Bombay	C	4	1		1													
	D	6	1		1													
Calcutta	C	74	58	133	118	32	47	31	52	53	111	53	130	174	223	141	106	
	D	42	25	70	54	15	21	9	28	25	56	25	42	58	125	79	59	
Chittagong	C			6	1		1		1									
	D			1	2				1									
Madras	C				3		6											
	D				3		2	1										
Rangoon	C		1													1		
	D		1													1		
India (French):																		
Chandernagor	C		3											11				
	D		3											5				
Karikal	C			35	2													
	D			17														
Pondicherry Territory	C			15				1	1									
	D			15				1	1									
Pondicherry	C								1									
	D								1									

[1] A suspected case.

[2] Figures for cholera in the Philippine Islands are subject to correction.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

CHOLERA—Continued

[C indicates cases; D, deaths; P, present]

Place		Nov. 15–Lec. 12, 1932	Dec. 13 1931–Jan. 9, 1932	Jan. 10–Feb. 6, 1932	Feb 7–Mar 5, 1932	Week ended— March, 1932			April, 1932					May, 1932				June 4, 1932
						12	19	26	2	9	16	23	30	7	14	21	28	
India (Portuguese)	C	3	1															
	D	3	1															
Indo-China (see also table below):																		
Pnompenh	C			2						1						1		
	D			2						1						1		
Saigon and Cholon	C	P	2	1	1				1			1	1	1	1	2	2	2
	D											1	1	1	1	2	2	1
Iraq:																		
Amara	C	3	2															
	D	4	2															
Amara Province	C	3																
	D	2																
Muntafiq Province	C	2																
	D	3																
Nasiriyah	C	8																
	D	7																
Persia:																		
Abadan	C	1																
Ahwaz	C	47																
	D	39																
Khorramabad	C	159	3															
	D	115	10															
Kouh Bezman	C												[1] 1					
Philippine Islands: [2] Capiz Province	C	27	28	22	23													
	D	19	19	20	20													
Siam:																		
Ayudhaya Province	C	1		1			1			1	1							
	D	1		1			1		1		1							
Bangkok	C	1		1		1	1			1								
	D	1		1			1											
On vessel:																		
S. S. Angora at Rangoon from Calcutta	C								1									
S. S. Narbada at Rangoon from Calcutta	C									1								
	D									1								
S. S. Shanghai Maru at Kobe from Shanghai	C																	1

Place		October, 1931	November, 1931	December, 1931	January, 1932	February, 1932			March, 1932			April, 1932		
						1-10	11-20	21-29	1-10	11-20	21-31	1-10	11-20	21-30
Indo-China (French) (see also table above):														
Annam [1]	C					4								
	D					4								
Cambodia [1]	C	19	4	3	12	3	2		6	1	3	4	1	20
	D	18		2	6	2	2		3	1	1	3		8
Cochin-China [1]	C	14	6	14	5	7		P	3	2	4	3	6	18
	D	13	4	7	4	5			2	1	2	2	3	13
Laos [1]	C											7		
	D											3		

[1] Reports incomplete.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE[1]

[C indicates cases; D, deaths; P, present]

Place		Nov. 15–Dec. 12, 1931	Dec. 13, 1931–Jan. 9, 1932	Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Week ended— March, 1931 12	19	26	April, 1932 2	9	16	23	30	May, 1932 7	14	21	28	June, 1932 4	11
Argentina: Cordoba Province[2]	C		1	1							2								
Azores:																			
San Miguel Island	C	5																	
	D	1																	
Terceira Island	C	16																	
	D	6																	
Belgian Congo	C		1														2		
British East Africa (see also table below):																			
Tanganyika	C			10			2												
	D			10															
Uganda	C	145	63	31	8			3	1	1	7	13							
	D	138	62	26	6			3	1	1	6	11							
Canary Islands: Palma Island—Los Lanos	C			8											1				
	D			8															
Ceylon: Colombo	C	1	4	5	4	1	1		1		1		1	1	3		2	5	
	D	1	4	3	3	1	1		1		1		1	1	1		2	5	
Plague-infected rats		1	1	1									1	5	2	2		4	
China:																			
Kwang Chow Wan	C						8												
	D						8												
Shensi Province	C				P														
Dutch East Indies:																			
Java—																			
Surabaya	C			2															
	D			2															
Tegal	C				1														
Java and Madura	D	702	587	499	459	98	79	89	96	95	75	95							
West Java	C	198	203	201	141	54	40	51	68	68	52	64	55						
	D	198	203	200	139	55	40	51	67	68	52	63	54						
Ecuador (see table below).																			
Egypt:																			
Alexandria	C	3		2	2									1	2	1	8	1	2
	D	3													2		1	2	1
Assiout	C	1	2	1															
	D	1	2	1															

[illegible]	C			11									1	2				1	1
	D			2									1	3				1	
Beni Suef	C											4	33	2				1	
	D												8	3					
Gharbieh	C																	2	
	D																		1
Girga	C	2	1																
	D	2	1																
Kena	C	4	2																
	D	3	2																
Minieh	C	2	7	1				3											
	D		7	1				2	1										
Port Said	C	4	1																
	D	2	1																
Tanta	C	2		1															
	D	2		1															
Hawaii Territory:																			
Hawaii Island—																			
Hamakua—																			
Honokaa	C				2														
	D				2														
Plague-infected rats					1														
Kukaiau—Plague-infected rats																	1	1	
Maui Island—																			
Makawao	C				1														
	D				1														
Plague-infected rats					4														
India	C	4,235	6,998	7,892	8,593	2,824	2,768	1,779	2,353	1,804	1,400	1,279							
	D	1,739	2,912	3,971	4,970	1,567	1,545	952	1,479	1,065	852	859							
Bassein	C			1	4	1	3	3	2	4			1	2					2
	D				4	1	2	1	3	3		1		2					2
Bombay	C	1			5	1	1	2	4	6	3	5	5	2	2	1			
	D	1			5		1	1	4	5	3	5	2	1	2	1			
Plague-infected rats		56	42	57	109	31	26	17	43	30	23	35	34	25	21	1	11		
Madras	C											1[3]							
	D											1							
Madras Presidency	C	57	169	2,951	70	37	64	27	30	42	16	11							
	D	24	59	155	47	17	25	18	26	14	6	4							
Rangoon	C	1	1		9	2		1	1	4	1	1	1				1		
	D	1	1	1	8	1	1	1	1	4	1		1						
Plague-infected rats		2	1		2	3	1	1	3	4			1		2		1		
Indo-China (see table below).																			
Iraq:																			
Baghdad	C	7	2	5	3														
	D	2			1														
Maudhan	C	2																	
	D	1																	
Madagascar (see also table below): Tamatave	C		1																

[1] Including plague in the United States and its possessions.
[2] 10 cases of bubonic plague were reported in Cordoba Province, Argentina, in January, 1932. They were distant from railroad and 500 kilometers from ports.
[3] An imported case.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place		Nov. 15–Dec. 12, 1931	Dec. 13, 1931–Jan. 9, 1932	Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Week ended— March, 1931			April, 1932					May, 1932				June, 1932	
						12	19	26	2	9	16	23	30	7	14	21	28	4	11
Morocco	C	11																	
Peru (see table below).																			
Senegal (see table below).																			
Siam	C	5	1	1	1	4	1	1	1										
	D	2	1	1		2			1										
South west Africa [4]																			
Syria: Beirut	C									1			1						
Union of South Africa: Orange Free State	C	P	P	P	P				P										
	D						10												
United States: California—Los Angeles—Plague-infected rats										1				2					1

[4] 80 cases of plague with 15 deaths have been reported in Ovamboland, South west Africa, up to Apr. 30, 1932. All antiplague measures have been taken.

Place		October, 1931	November, 1931	December, 1931	January, 1932	February, 1932	March, 1932	April, 1932
British East Africa (see also table above): Kenya	C	64	44	41	17	33	22	18
Ecuador:								
Province—								
Chimborazo	C	2	8		8	13		
Loja	C	11	2		11			
Indo-China	C	3		9	17	P	P	9
	D	1		5	9			6
Madagascar (see also table above):								
Province—								
Ambatolampy	C				23	40		
	D				23	38		
Ambositra	C	8	39	142	166	90		
	D	5	37	121	152	81		
Antisirabe	C	17	27	56	53	45		
	D	17	27	51	51	45		
Maevatanana	C		4					
	D		4					
Miarinarivo	C	18	10	14	15	13		
	D	16	9	14	15	12		
Moramanga	C	13	25	30	13	9		
	D	11	25	29	13	9		
Tananarive	C	120	166	248	203	148		
	D	117	178	241	196	140		
Peru	C	8	27	21	11	2		
	D	7	11	9	8	2		
Department—								
Canete	C				3			

Place		October, 1931	November, 1931	December, 1931	January, 1932	February, 1932	March, 1932	April, 1932
Peru—Continued.								
Department—Continued.								
Cajamarca	C		14					
	D		5					
Libertad	C		2		1			
Otuzco	C							28
Lima	C		9		6		1	
	D		4					
Plague-infected rats		1						
Lima	C		1			1	1	
	D		1			1		
Piura	C	8			1			
	D	7						
Senegal:								
Baol [5]	C	6	2					
	D	2						
Dakar [5]	C	4					10	
	D	4					5	
Diourbel [5]	C		10					
	D		5					
Louga [5]	C	1	19					
	D	2	10					
Rufisque [5]	C	7	12					
	D	1	2					
Thies [5]	C	7	16	1				
	D	5	7	1				
Yombel [5]	C						9	
	D						5	

[5] Reports incomplete.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX

[C indicates cases; D, deaths; P, present]

Place		Nov. 15–Dec. 12, 1931	Dec. 13, 1931–Jan. 9, 1932	Jan. 10–Feb. 6, 1932	Feb. 7–Mar 5, 1932	Week ended— March, 1932: 12	19	26	April, 1932: 2	9	16	23	30	May, 1932: 7	14	21	28	June 4, 1932
Aden	C			2			1											
Algeria:																		
Algiers	C		1															
Constantine Department	C										1		1	1		1		
Philippeville	C												1					
Southern Territories	C				2													
Brazil:																		
Porto Alegre (alastrim)	C	51	35	34	19		3	1	1	2	1	2						
	D	1	2					1										
Rio de Janeiro	C		1															
Santos	C	1		2														
British, East Africa: Tanganyika	C	2	55	24	5													
	D		4	7	2													
British South Africa:																		
Northern Rhodesia	C		7	5														
Southern Rhodesia	C		1						4	1	6							
Canada:																		
Alberta	C	3	11															
British Columbia [1]	C		2	18	25	7		2	1									
Manitoba	C	2		10							1							
Nova Scotia	C	1			1													
Ontario	C	11	14	6	21	1			3		2	4		1			23	
North Bay	C			1														
Toronto	C	1																
Quebec	C		3	1	8													
Saskatchewan	C	34	11	35	30	5			1		1	5	2	3	1	3	6	
Chile: Tocopilla	C		2															
China:																		
Amoy	C	46	218	183	121	15	12	8	10	7	5	4	1	3		2		
	D	36	79	91	44	5	7	3	10	4	3	3	1	2		2		
Canton	C	14	18	27	44	21	18	29	11	24	18	22	17	19	9	5	9	
	D				1	7						1		1				
Foochow	C	P	P	P	P		P		P		P		P		P			
Hankow	C	29	47	59	4			3	2	1		1	1	1	1			
	D	6	12	5	1													

Hong Kong	C		1	11	51	12	7	17	9	12	13	21	9	7	9	7	1	4
	D			6	23	7	6	7	8	2	6	6	6	7	6	2	2	4
Manchuria—Dairen	C	1		1	1	3	1	7	5	7		1						
Nanking	C	2																
	D	1																
Shanghai	C	77	155	163	167	30	29	13	30	22	24	22	22	16	6	5	6	3
	D	31	41	62	67	15	17	6	7	7	10	8	10	6	5		2	1
Swatow	C		2		1													
Tientsin	C	1		1	2	1	6	1		1	1			1				
	D				1		1											
Chosen (see table below).																		
Colombia: Cali	C		1															
Dahomey	C							3	3				2	2				
	D								1									
Dutch East Indies: Batavia	C		1	1														
	D			1														
Egypt:																		
Alexandria	C								1						1	1		
Cairo	C			1														
Suez	C				2	3	5	7	5	1	1	2		1				
	D						1	1	1									
France (see table below).																		
Germany: Aix-la-Chapelle	C			1														
Gold Coast (see table below).																		
Great Britain:																		
England and Wales	C	216	198	227	278	76	61	41	95	70	87	96	62	68	76	56		
London	C	118	100	100	136	28	23	23	55	30	25	48	34	41	39	25	29	
London and Great Towns	C	191	152	188	203	57	56	37	86	57	63	86	51	59	60	47		
Guatemala (see table below).																		
Honduras: [2]																		
Ceiba	D				1		1	1		1								
Puerto Castilla	C			1	4								4			1		
Tegucigalpa	C	8			5													
Tela	C								2	2							1	
Trujillo	C				35													
	D				5													
India	C	2,298	2,361	4,576	9,709	3,006	2,339	2,818	3,877	4,093	3,431	3,083						
	D	1,066	464	970	1,896	580	405	518	731	783	705	665						
Bassein	C			3						1								
	D									1								
Bombay	C	1	3	6	23	8	8	4	7	7	7	8	3	10	12	2	12	
	D	1	2	2	10	4	3	1	4	2	3	5		2	4	1	5	
Calcutta	C	1	7	27	102	22	44	50	43	38	19	40	36	17	35	22	19	
	D	1	3	15	54	14	30	36	35	30	11	22	36	12	29	16	10	
Chittagong	C						2								2			
	D						1								1			
Cochin	C			1	9	2		1		1								
Karachi	C	5	3	18	23	4	3	3	9	6	4	10	9	4	5	3	4	
	D			6	8	1	1	3	3	2		2	5		2	1	3	

[1] 23 cases of smallpox with 8 deaths were reported at Vancouver, British Columbia, from Jan. 1 to Feb. 18, 1932.
[2] 590 cases of smallpox with 15 deaths were reported in Honduras from July, 1931, to Feb. 16, 1932.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Nov. 15–Dec. 12, 1931	Dec. 13, 1931–Jan. 9, 1932	Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Week ended— March, 1932			April, 1932					May, 1932				June
						12	19	26	2	9	16	23	30	7	14	21	28	4, 1932
India—Continued.																		
Madras	C	7	7	9	15	15	9	15	12	15	20	13	10	17	10	10	10	
	D	2	2	3	4	6	4	1	5	4	2	2	3	2	4	2	3	
Moulmein	C			4	4	4	2	1		1								
Negapatam	C	1			1			1								1	2	
	D	1		1												1		
Rangoon	C	9	39	147	418	172	128	163	143	116	71	32	41	18	26	13	9	
	D	7	10	40	127	61	37	50	31	32	28	12	16	9	11	6	2	
Tuticorin	C	8	6	28	36	9	4		1		3		2	4				
	D			2	8	4	4		1		1		2	5				
Vizagapatam	C		2		3			2										
India (French):																		
Karikal	C	7	4	1	4	3	2	8	6	3	15	1	2	2	4		4	
	D	7	2	1	4		1	2	6	3	6	1	2	2	2		2	
Pondicherry Territory	C	26	22	32	20	11	10	1	7	3	10	6	3	3	5	28	11	
	D	25	22	27	20	7	10	4	5	2	8	6	3	3	5	28	11	
Indo-China (see also table below):																		
Pnompenh	C			1	2			1										
Saigon and Cholon	C	26	32	117	145	54	45	71	42	33	35	32	13	12	8	8	5	3
	D	12	24	92	85	48	35	60	31	30	32	27	12	11	7	7	5	3
Iraq:																		
Baghdad	C	11	15	10	4	1	1	12	6		5	10	12	4	7	10		14
	D	5	8	13	4	1		5	4		2	5	6	2	3	3		6
Basra	C		1	2	2			4	7	1	1	1	1	1	1			2
	D		2								1	2	1		1			1
Ivory Coast (see table below).																		
Jamaica	C	1																
Japan:																		
Kobe	C				1	1		1			1				1	7	2	
	D					1											1	
Nagasaki	C													1	4	4	4	1
Osaka Prefecture [3]	C											3	90					
Osaka	C														1			
Taiwan	C			35	58		1											
Yokohama	C	1	1	2														

Mexico (see also table below):																		
Chihuahua	D				3				1	1						1		
Durango	D									1								
Jalisco (State)—Guadalajara	D	1	1	3		1						1	1		1			1
Mexico City and surrounding territory	C	10	8	14	33	6				2	5	6	3	3	2	3	9	
	D				1							1	1		1			
Monterrey	C			1	8	1					1	1						
San Luis Potosi	D		2	5	2	2	1				1	1		1			1	
Torreon	C	7	2	6	2		1	1		1			2		1	1	1	1
	D		2	2	3		1	1		1			2		3			1
Morocco (see table below).																		
Nigeria	C	15		217	46		270	1	480									
	D	1		120	2		24	1	86									
Palestine	C														1			
Panama: Chiriqui	C	3																
Poland	C	1	1												1			
Portugal:																		
Lisbon	C	91	108	98	50	10	14	8	6	5	11	4	6	10	5	8	6	
Oporto	C	2	2	3	14	4	4	4	2	10	6		5	3	5	8	8	4
Salvador	C				85	10												
Siam	C		13	1		2											1	
Sierra Leone: [4]																		
Straits Settlements	C		2	4	6	1												
	D			1		2												
Sudan (Anglo-Egyptian)	C	2	2	3	8	1		3			1		2					
	D			1	1													
Sweden: Malmo	C			9														
Syria (see table below).																		
Tunisia: Tunis	C		1			1												
Turkey (see also table below): Istanbul	C				1						1				1			
Union of South Africa:																		
Cape Province	C	P	P							P	P	P	P					
Orange Free State	C										P	P	P					
Transvaal	C	P					P	P					P					
On vessels:																		
Brazilian ship Jaboatao at New Orleans from Brazil	C		1															
S. S. Tacoma at Manila from Shanghai	C		1															
S. S. Cressington Court at Yokohama from Shanghai	C			1														
S. S. Bollington Court at Yokohama from Shanghai	C			1														
S. S. Victoria City at Brisbane from Shanghai	C			1														
S. S. Bellasco at Mobile from Habana, Cuba, and Hull, England	C		1															
S. S. Frauenfels at Suez from Calcutta	C					1												
S. S. Uwajima Maru at Osaka from Shanghai	C			1														

[3] 200 cases of smallpox were reported in Osaka Prefecture, Japan, from Mar. 1 to May 24, 1932.
[4] From Mar. 6 to Apr. 30, 1932, 551 cases of smallpox with 6 deaths, were reported in Sierra Leone.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Nov. 15–Dec. 12, 1931	Dec. 13, 1931–Jan. 9, 1932	Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Week ended— March, 1932			April, 1932					May, 1932				June 4, 1932
						12	19	26	2	9	16	23	30	7	14	21	28	
On vessels—Continued.																		
S. S. President Jackson at Yokohama from San Francisco via Honolulu	C		1															
S. S. Hong Kheng at Singapore from Amoy, via Swatow and Hong Kong	C			1														
S. S. Hai Ning and S. S. Solviken at Hong Kong	C			P														
S. S. Merkara at Aden from Colombo	C			2														
S. S. Tjisadane at Hong Kong from Shanghai and Amoy	C			P														
S. S. Poafung at Shanghai	C			1														
S. S. Rajula at Penang from Negapatam	C			P														
S. S. MacGillivary at Suez from Rangoon	C					[5] 1												
S. S. Tainui at Southampton from New Zealand	C							[5] 1										
S. S. Glenbank at Suez from Aden	C								1									
S. S. Tuscania at Suez from Bombay	C															1		

[5] A suspected case.

Place		November, 1931	December, 1931	January, 1932 1–10	January, 1932 11–20	January, 1932 21–31	February, 1932 1–10	February, 1932 11–20	February, 1932 21–29	March, 1932 1–10	March, 1932 11–20	March, 1932 21–31	April, 1932 1–10	April, 1932 11–20	April, 1932 21–30
Gold coast	C					2									
	D					1									
Indo-China (see also table above)	C	120	509	11	107	191	145	206	309	230	275	222	175	247	146
	D	22	93	11	52	85	47	98	86	109	113	120	80	97	64
Ivory Coast	C	1													
	D	1													
Syria: Beirut	C			2	3								1		1

Place		October, 1931	November, 1931	December, 1931	January, 1932	February, 1932	March, 1932
Chosen	C	7	2	1	1	6	30
	D	1				3	9
France	C		6	1			
Guatemala	C				5		
	D				1		

Place		October, 1931	November, 1931	December, 1931	January, 1932	February, 1932	March, 1932
Mexico (see also table above)	D	427	419	423			
Morocco	C	91	152	279	488	368	308
Turkey (see also table above)	C				31	22	2
	D				1	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

Place		Nov. 15–Dec. 12, 1931	Dec. 13, 1931–Jan 9, 1932	Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Week ended— March, 1932: 12	19	26	April, 1932: 2	9	16	23	30	May, 1932: 7	14	21	28	June 4, 1932
Algeria:																		
Algiers	C		4	1	3			7			8	9	23	7	23	31		
Constantine Department	C	3	5	7			7											
Geryville	C			7	1													
Oran	C	1				1												
Bulgaria	C	4	22	44	66	12	10	12		15	6	15	9	10				
	D		3	6	6	1	1				3	4	2					
Chile:																		
Antofagasta	C		1	1												1		
Santiago	C	3					1				1							
China:																		
Hankow	C		4				1	3										
Swatow	C				2													
Chosen (see table below).																		
Comombia. Cali	D				1													
Czechoslovakia (see table below).																		
Egypt:																		
Alexandria	C		5		1					5	2	7					1	
Beheira	C		7		70				46				5					
	D				16								1					
Cairo	C	1																
Gharbieh	C		1		12								5					
	D												2					
Providences	C		11	43	333	148	164	164	200	112	49	41	20	27				
	D		2	3	25	15	17	17		18	9	12	4	6				
Greece (see table below.)																		
Irish Free State:																		
Donegal County—Stranorlar	C	2																
Limerick County—Limerick	C	1																
Roscommon County—Roscommon	C																	1
Waterford County—Lismore	C		1															
Latvia (see table below).																		
Lithuania (see table below).																		

Mexico:																		
Guadalajara	D		1															
Mexico City, including municipalities in Federal District	C	22	11	25	20	2	3	2		3	2	3	3	2		5	1	
	D	4	6	9	12	2		2		1		2					2	
San Luis Potosi	D		1		1		1											
Morocco	C	17	9	6	59	3	21		5	9	7	3	15	3	7	7	2	
	D	2	1		6	2	4			1								
Palestine	C	1	4	3	1									1				2
Paraguay: Asuncion	D				1													
Poland	C	106	193	265	215	74	65	52	64	85	95	119	115	70	106	106	98	
	D	10	14	10	21	5	5	4	8	5	10	11	13	7	4	5	9	
Portugal: Oporto	C			1	1					10				3				
Rumania	C	68	108	264	296	82	79	56	53	89	62							
	D	6	10	13	28	12	8	6	5	8	6							
Tunisia: Tunis	C	26	2	1	24	14	26	10	31	32	6	20	19	26	15	13		
	D	2			3	2		3	3	4								
Turkey (see table below).																		
Union of South Africa:																		
Cape Province	C	P	P	P	P		P	P	P	P	P	P	P					
Natal	C	P	P		P							P	P					
Orange Free State	C	P	P	P	P	P		P	P	P	P	P	P					
Transvaal	C	P	P	P	P													
Venezuela: Caracas (see table below).																		
Yugoslavia (see table below).																		
On vessel: At Antofagasta, from Iquique and points north	C		1															

Place		November, 1931	December, 1931	January, 1932	February, 1932	March, 1932	April, 1932
Chosen: Seoul	C	4			5	4	
	D	1			1		
Czechoslovakia	C		10	1			1
	D		3				
Greece	C	4	6	4	4	7	
	D		1				
Latvia	C		12				

Place		November, 1931	December, 1931	January, 1932	February, 1932	March, 1932	April, 1932
Lithuania	C	9	20	21	10	32	25
	D		1	3	3	3	5
Turkey	C	14	21	14	22	6	1
	D		2	3	1	3	
Venezuela: Caracas	D		1	2			
Yugoslavia	C	2	14	11	26	5	29
	D	1	1		2	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

YELLOW FEVER

[C indicates cases; D, deaths; P, present]

Place		Nov. 15–Dec. 12, 1931	Dec. 13, 1931–Jan. 9, 1932	Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Week ended— March, 1932: 12	19	26	April 1932: 2	9	16	23	30	May, 1932: 7	14	21	28
Brazil:																	
Bahia State	C		2														
Esplanada	C													P			
Ceara State	C												1				
	D												1				
Espirito Santo State [1]	C						2			1	P	P	P				
	D						2			1							
Santa Teresa (about 56 miles from Victoria)	D				1												
Dahomey: Porto Novo	C								1								
	D								1								
Gold Coast:																	
Avudua	C								1	1							
Cape Coast	C					P											
Dagomba District	C	1															
Salaga	C	1															
	D	1															
Tamale	C	3															1
Yapei	C						1										
Nigeria	C	2			1												
	D	2															
Togo (French): Atakpame—Anie Circle	D	1															

[1] During the 3 weeks ended Apr. 30, 1932, a number of cases of suspected yellow fever were reported in the interior of the State.

X

UNITED STATES TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

ISSUED WEEKLY

BY THE UNITED STATES PUBLIC HEALTH SERVICE

VOLUME 47 :: :: NUMBER 28

JULY 8 - - - - 1932

SPECIAL ARTICLES

Prevalence of Communicable Diseases in the United States

Sanitation at the Yorktown Sesquicentennial Celebration

UNITED STATES
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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISON OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

The PUBLIC HEALTH REPORTS are intended primarily for distribution to health officers, members of boards or departments of health, and those directly or indirectly engaged in or connected with public health or sanitary work. Articles of general or special interest are issued as reprints from the PUBLIC HEALTH REPORTS or as supplements, and in these forms are available for general distribution to those desiring them.

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CONTENTS

PUBLIC HEALTH REPORTS

VOL. 47 JULY 8, 1932 NO. 28

CURRENT PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES[1]

May 22–June 18, 1932

The prevalence of certain important communicable diseases, as indicated by weekly telegraphic reports from State health departments to the Public Health Service, is summarized in this report. The underlying statistical data are published weekly in the PUBLIC HEALTH REPORTS, under the section entitled "Prevalence of Disease."

Typhoid fever.—The usual seasonal rise of typhoid fever occurred during the four weeks ended June 18. The number of cases increased from 679 for the preceding 4-week period to 1,291 for the current period. For the whole reporting area the incidence was about 22 per cent in excess of the incidence during the same period last year. It was very close to the average for recent years. A comparison of geographic areas shows that the numbers of cases reported from the East North Central (140), South Central (479), and Mountain and Pacific groups (134) were the highest for those areas for this same period in four years. The New England and Middle Atlantic and West North Central reported the lowest incidence in four years.

Poliomyelitis.—The number of cases of poliomyelitis increased from 71 for the four weeks ended May 21 to 108 for the current period. Each geographic area shared in the increase. The current incidence represented a decrease of about 13 per cent from last year and 43 per cent from 1930. It was, however, approximately 13 per cent above the incidence in 1929, a more nearly normal year. Only two areas showed increases over last year, the East North Central and South Atlantic. While the number of cases (26) was not high in the East North Central States, it was the highest recorded for that group of States in four years. Each year for a number of years has shown a marked increase in the number of cases during this period.

Smallpox.—The smallpox incidence remained at a very satisfactory low level in all sections of the country during the 4-week period ended June 18. The total number of reported cases was 900, as compared

[1] From the Office of Statistical Investigations, U. S. Public Health Service. The numbers of States included for the various diseases are as follows: Typhoid fever, 47; poliomyelitis, 48; meningococcus meningitis, 48; smallpox, 48; measles, 45; diphtheria, 47; scarlet fever, 47; influenza, 39 States and New York City. The District of Columbia is counted as a State in these reports.

with 3,001, 4,042, and 3,775 for the corresponding period in the years 1931, 1930, and 1929, respectively. In each geographic area the current incidence was the lowest for the period in four years.

Scarlet fever.—The incidence of scarlet fever followed the usual seasonal decline during the current 4-week period. However, the number of cases (16,156) was slightly higher than that reported for the same period in 1931 and the highest reported for this period in four years. The New England and Middle Atlantic States reported 9,542 cases, which was 1.4 the number reported for this period in 1931. The Mountain and Pacific States reported a slight increase over last year. Reports from other areas indicated decreases ranging from 11 per cent in the South Atlantic States to 26 per cent in the South Central groups.

Influenza.—The influenza outbreak which appeared early in the year has apparently abated in all sections of the country, although the number of currently reported cases (2,331) was still 24 per cent in excess of last year's figure for the same period. For this period in 1930 and 1929 the cases totaled 1,520 and 1,864, respectively. While the number of cases was not high in any area, it represented an increase over the preceding year.

Measles.—The total number of cases of measles reported for the current period was 63,506, as compared with 63,199, 59,907, and 51,490 for the same period in the years 1931, 1930, and 1929, respectively. The increase over previous years seems to be mostly due to the unusual incidence of measles in the East North Central States which has prevailed for several months. All other areas showed decreases from last year's figure, ranging from 15 per cent in the New England and Middle Atlantic States to 54 per cent in the South Central States.

Diphtheria.—During the current 4-week period the diphtheria incidence maintained a favorable low level. The number of reported cases (2,522) was about 82 per cent of last year's figure. For the country as a whole the current incidence was the lowest for this period in four years. Among the geographic sections, however, the West North Central, South Central, and Mountain and Pacific areas showed excesses over last year of 8 per cent, 18 per cent, and 10 per cent, respectively. In the South Central and Mountain and Pacific groups the incidence was not only higher than it was last year but it was the highest for this period in four years.

Meningococcus meningitis.—The number of cases of meningococcus meningitis reported for the current period was 216, about 64 per cent of the number reported for the same period last year. For this period in 1930 and 1929 the number of cases totaled 499 and 919, respectively. All areas shared in the decline.

Mortality, all causes.—The average mortality rate from all causes in large cities, as reported by the Bureau of the Census, was 10.7 per thousand population (annual basis). In relation to recent years the current mortality was the lowest recorded in the past seven years for which records were available.

SANITATION AT THE YORKTOWN SESQUICENTENNIAL CELEBRATION

By ARTHUR P. MILLER, *Past Assistant Sanitary Engineer, United States Public Health Service*

In any celebration such as the Yorktown Sesquicentennial, held at Yorktown, Va., on October 16–19, 1931, it is of paramount importance that the health of those in attendance be protected and the interstate spread of disease be precluded by the provision of proper and suitable sanitary facilities and by the enforcement of all necessary rules to insure the maximum in sanitation. There must be careful planning based on predictions of the number to be present, and, obviously, much construction work must be completed prior to the opening date of the celebration. In this particular case the planning was done jointly by the National Park Service and the Public Health Service, and construction was carried out under the direction of the National Park Service. The preparations for the Yorktown Sesquicentennial were so closely linked with the permanent installations for the Colonial National Monument that it is impossible to divorce the two activities in giving a comprehensive picture of sanitation work; therefore, they will be discussed together.

The operation of the sanitary facilities which were found necessary previous to and during the celebration was directed by the Public Health Service. Subsequent to the celebration, the National Park Service took over this work. In these operating activities valuable assistance was given by personnel from the Virginia State Department of Health.

Yorktown, Va., is a small town, having a population of 480, situated on the York River in the eastern part of the State. Conservative estimators were of the opinion that from 100,000 to 120,000 people attended on the last day of the celebration, when President and Mrs. Hoover with their party were present. The total attendance for the four days could not be readily estimated, but it must have approached 200,000.

WATER SUPPLY

A large gathering of people can not be adequately accommodated without a sufficient supply of pure drinking water. As the town has no water supply, some time before the date of the celebration the con-

structing authorities decided to drill a well for this purpose. To obtain some idea of the quality of the probable water supply, bacterial and chemical tests were secured on samples of water taken from an artesian well on the beach of the York River. The bacterial results of these tests were satisfactory, while the chemical test indicated that, although a completely suitable water might not be procured, one incapable of producing harmful physiological results probably would be. Based on the data available, including responses to inquiries made of competent persons, the procurement of a suitable water from the ground was considered feasible, and a contract was made for obtaining 700 gallons per minute from a drilled well.

The results hoped for from this new well were never obtained. Less than 100 gallons per minute were actually pumped, and the chemical quality of the water was inferior to that of the water from the artesian well on the beach. Because of this inferiority in quality and the lack of ample supply, arrangements were quickly made to install a 200-gallon-per-minute pump on the beach well. With the thought that this source might not provide an adequate water supply, because of the continuous pumping which would be necessary, the possibility of getting additional water from Wormleys Pond was investigated. This was found to be feasible; but since the water comes from surface sources, chlorination was necessary. Detailed plans for the installation of such a chlorinator and arrangements to procure it were all made ahead of the celebration date so that in case this source should be needed, immediate action could be taken to use it.

A water-distributing system was installed under another contract. The system was first connected to the well newly driven by the National Park Service, but when that well proved inadequate, pipe was connected to the new pump placed on the artesian well at the beach. Through this pipe system water was forced to the permanent buildings of the National Park Service in Yorktown, to the celebration grounds, and to the Moore House area. In addition, much temporary line was laid on the celebration grounds to furnish water to kitchens and shower baths in the army area, to groups of drinking-water fountains, the main restaurant, and other points in these grounds where water was thought to be needed.

Before releasing for consumption the water passing through the new pipe line, the entire system was chlorinated and flushed out. However, due to the short time available for this work, bacterial results on samples of water taken from the system were not favorable. Hence, with the able assistance of the Virginia State Department of Health and certain Army personnel, a chlorinator was procured and put into operation, the chlorine being applied to the suction of the pump on the artesian well at the beach. From this time on

there was no question regarding the safety of the drinking water, even though its palatability was not beyond reproach.

A definite effort was made to have drinking water conveniently available for all who wanted it. Groups of five sanitary fountains were placed at three different positions close to the grandstand, where it was thought more of the people would congregate for the longest time. In addition, two other groups of the same number were installed at other locations in the celebration area. Single fountains were connected to the system at six different locations in the village of Yorktown.

SEWAGE DISPOSAL

The sewage disposal problem was met in two ways: The first involved the installation of certain permanent comfort stations for use not only during the celebration but after it also, in connection with the Colonial National Monument activities, and the second required the preparation of temporary facilities to care for a very large gathering of people over a 4-day period.

The National Park Service located the permanent toilets so as to be of the greatest service after the celebration. Two buildings, one for white men and the other for white women, were erected at both the Moore House and the celebration grounds. Near the Yorktown Monument, which is on the outskirts of the town, and near the headquarters of the Colonial National Monument, which is in the center of the town, single buildings were constructed, each having two entrances and being designed for use by both white men and white women. In addition, a building planned for joint use by both the colored sexes was placed near the Colonial National Monument office. For buildings of this type, these were exceptionally good. They were equipped with the usual fixtures, as well as other conveniences, such as paper-towel holders, drinking fountains, and electric heaters, to insure the comfort of those using the stations.

Each of these four separate groups of comfort stations had its own sewage treatment plant, the plans for which were prepared by the Public Health Service. Each treatment plant consisted of a concrete septic tank discharging its effluent into a sewage trench which was designed to take the place of the more commonly used field tile. The tanks were designed oversize to permit them to receive the temporary excess load which would necessarily be placed on them during the 4-day celebration.

To determine the best arrangement of temporary comfort stations in the celebration area, consideration had to be given to the general plan for the area, the location of automobile parking fields, the points at which the guests would be most likely to congregate in large numbers, and the like. Various shifts and readjustments of the major

celebration plans caused numerous relocations of temporary comfort stations on the field map, but finally these plans became stabilized in a layout of the large number of comfort stations that was satisfactory. Toilets were located in groups; and to simplify their construction, a unit system was adopted. With very few exceptions the following capacities were used for these temporary toilets:

Users	Number of seats	Linear feet of urinals
White men	20	21
White women	22	----------
Colored men	6	7
Colored women	6	----------

The total facilities built are given in the following table:

Users	Number of units	Number of seats	Linear feet of urinals
White men	20	390	441
White women	20	430	----------
Colored men	7	42	49
Colored women	7	42	----------
Total	54	904	490

After the celebration had started it was found necessary to turn over two units containing 42 seats to the United States Army. This reduced the total number of seats available for the general public to 862.

As stated before, the general style of all the temporary comfort stations was the same, and it was worked out by the National Park Service. Over a suitable trench, framework needed to support canvas flies was constructed. Comfortable seats were made with self-closing covers, and the seats in all the comfort stations were separated by cloth partitions at the sides and back. In addition, those provided for women had cloth flaps in the front of each stall. In all of the comfort stations for men where the station was sufficiently close to the water system, water for washing was provided through faucets located over the urinals, which were connected up to the pits with pipes. Also in the women's buildings washbasins were installed where water was available. Paper towels were provided in all buildings having washing facilities, and waste baskets for waste paper were placed in each comfort station.

The sewage-disposal problem had to be given careful consideration, particularly in the area allotted to the United States Army and the National Guard, because these two groups had their living quarters on the watershed of the Newport News Water Co. No privies with pits could be constructed on that portion of the watershed owned by

this water company. Instead, a can privy system was installed, which involved the building of fifty-two 6-can units. These units were similar to the other comfort stations constructed for temporary use, in that framework was erected and canvas flaps were used to cover the framework. All cans were provided with movable wooden covers. The use of the can privy system necessitated the establishment of a routine collection system.

GARBAGE

All foodstuffs sold in the celebration area were handled by one concessionaire. His restaurant tent seated about 3,200 persons; and as his meals were served from 6 a. m. to 10 p. m., the output of garbage was very great. On the last day of the celebration the crowds were so large and made so much use of the restaurant that one collection truck had to be assigned to the main restaurant for continuous service. In addition to taking care of refuse from the main restaurant, the garbage collecting system hauled all wastes from the United States Army kitchens, and from the food and soft drink stands located both on private lands along Surrender Road, which runs from the village to the celebration area, and in Yorktown. In spite of traffic difficulties, particularly on the last day, when the presidential party was at the celebration, wastes were removed from the congested area rapidly and with a minimum of confusion.

OPERATION

The operation of the works prepared before the celebration commenced presented a number of difficulties which could not be foreseen. It was considered particularly important to keep the celebration grounds, parking areas adjacent thereto, streets and roads, and the village of Yorktown free from litter, in order that the impression received by visitors might be the most favorable. This was accomplished by using a special group of men (approximately 30), whose duties were to move constantly over particularly assigned areas cleaning up all wastes dropped on the ground. Many box lunches were sold at noontime, and these, with their contents, added to this problem. The litter-collecting men carried over their shoulders bags in which waste paper and the like could be placed. The bags, when filled, were stored at designated spots where supplies of empty bags were available. This group of workmen was able to keep the area well policed.

At 20 places in the celebration grounds baskets were placed to receive paper wastes. These waste baskets, with the filled bags left at the designated points, were gathered up by a refuse-collecting detail.

The disposal pits to which all wastes from the celebration area were hauled were located about 800 feet from the main road leading from Yorktown to the celebration grounds and, in the most direct line, they were about 1,600 feet from the center of the grounds. One parking area was within 500 feet of the pits. Fortunately, the prevailing winds during the four days of the celebration were away from the scene of activities; and, due to this fact and to very careful supervision of the disposal, no complaints concerning smoke or odors were heard.

Collection of wastes was under the direction of a trained sanitary officer, and after the trucks reached the disposal pits the final disposition was under the direction of another such officer. Collection of garbage and refuse was handled separately from the removal of night-soil cans from privies. Adequate labor was supplied to each pit, and after a brief training, it functioned well. Pit-operating procedure was about as follows:

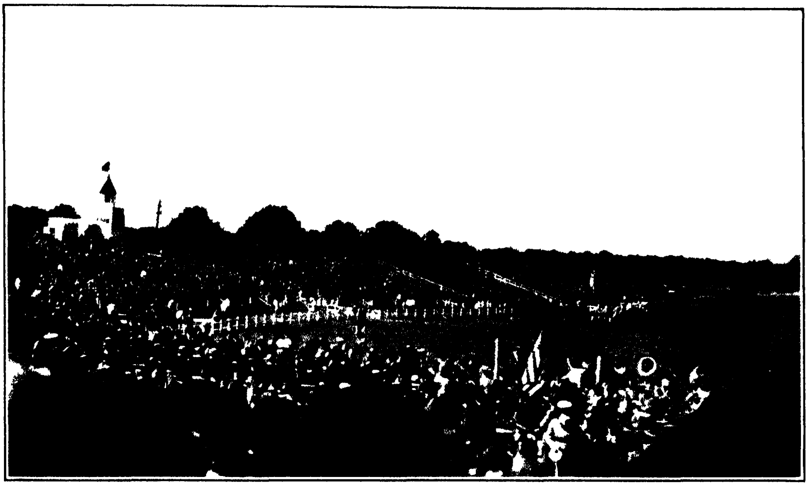
A loaded garbage truck would pull up to the unloading platform, cans would be removed, carried out on the movable bridges over the pit, and dumped. The cans were then washed with stiff brushes in the first vat and disinfected in the second, after which they were placed on the loading platform to await the return of the truck.

After the garbage cans had been taken off the truck, it moved forward to dump any combustible material it was hauling. Then, after it had been brushed out, it turned, and on the way back picked up the clean garbage cans.

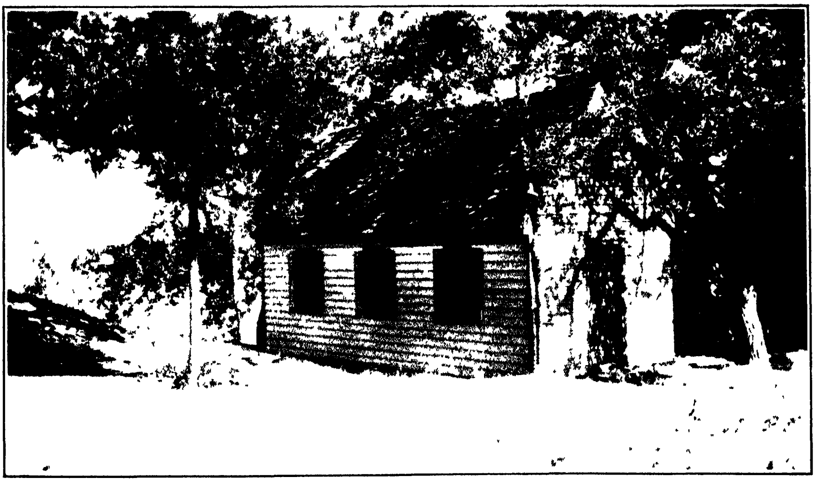
At the night-soil pits the procedure was the same, with the exception that each unloaded truck was washed with water at a point beyond the pits.

There was usually some time between truck arrivals at each pit. This would be used to cover fresh wastes with loose soil from the piles of excavated material; to wash platforms or drain washing tanks, if necessary; and generally to police the entire area with rakes. This constant attention to the cleanliness of the working areas at the pits probably went further to prevent their becoming a nuisance than any other operation performed.

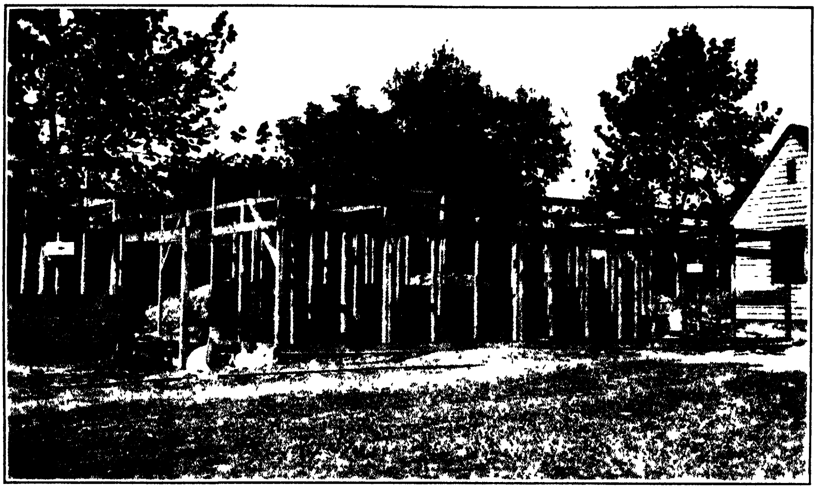
Many of the large tents erected were set aside for specific activities or groups. In these special tents, water coolers, paper drinking cups, paper towels, and facilities for washing were supplied. The activities of the groups of people in these temporary quarters necessitated attendants. Therefore, the tents were divided into convenient units and colored attendants were assigned to each. Their duties extended over a period from 6 a. m. to 10 p. m. (two shifts) and consisted in keeping the tents clean, providing drinking-water cups, towels, and any other needed service.



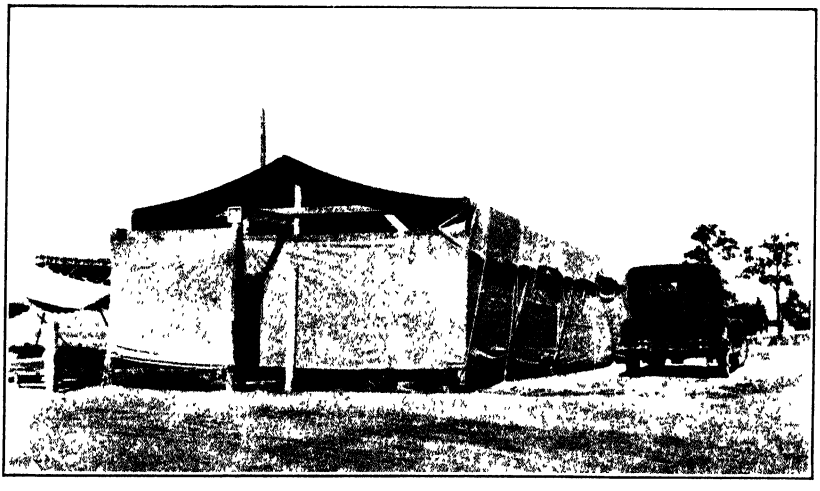
Approximately one-half the grandstands on Surrender Field, showing the large attendance on one of the days, with the presidential party in the foreground



Comfort station, with two entrances, designed for use by both white sexes and located near the Yorktown Monument



Framework of temporary comfort stations Note paper towel container in position and washbasins (on the ground) to be installed



Temporary comfort station with canvas flies in place and ready for use. (All illustrations by courtesy National Park Service)

Another important item of cleanliness involved the temporary and permanent toilets. Like the large tents, these were arranged in groups suitable for handling by one person, and, according to the sex for which the toilets were designated, male or female attendants were assigned to them. These helpers worked in two shifts also, and their duties included not only keeping the toilets assigned to them clean, but also frequently applying a strong disinfectant and deodorant to the pit content. The policing of latrines in the United States Army area was under the direction of the Army. The many tents and comfort stations needed and used during the celebration required the services of a light truck to keep them furnished with ice, towels, paper drinking cups, and other supplies.

CONCLUSION

The success of sanitation measures at a celebration of this kind depends upon close cooperation between the groups directing the celebration and the individual designated to handle sanitation; familiarity on the part of the sanitation director and his subleaders with the area to be used, the celebration program and other matters like the control of traffic; a sufficient number of subleaders experienced in sanitation, each with an adequate number of laborers to perform the duties entrusted to him; and authority to act promptly in any emergency necessitating an immediate decision. These general principles were effective in the celebration just discussed, and as a result the sanitary work was carried out with success and without adverse comment. There is a pleasant satisfaction in the successful performance of a task of this kind, but there is also a gratification in knowing that the thousands of visitors were provided with everything possible under the circumstances to make their visit comfortable and enjoyable.

DEATHS DURING WEEK ENDED JUNE 18, 1932

Summary of information received by telegraph from industrial insurance companies for the week ended June 18, 1932, and corresponding week of 1931. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)

	Week ended June 18, 1932	Corresponding week, 1931
Policies in force	72, 591, 928	75, 172, 566
Number of death claims	13, 184	13, 023
Death claims per 1,000 policies in force, annual rate	9. 5	9. 0
Death claims per 1,000 policies, first 24 weeks of year, annual rate	10. 3	10. 6

Deaths [1] from all causes in certain large cities of the United States during the week ended June 18, 1932, infant mortality, annual death rate, and comparison with corresponding week of 1931. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)

[The rates furnished in this summary are based upon mid-year population estimates derived from the 1930 census]

City	Week ended June 18, 1932				Corresponding week, 1931		Death rate [2] for the first 24 weeks	
	Total deaths	Death rate [2]	Deaths under 1 year	Infant mortality rate [3]	Death rate [2]	Deaths under 1 year	1932	1931
Total (85 cities)	7,109	10.1	623	[4] 50	10.5	608	12.1	13.0
Akron	34	6.7	3	37	6.5	2	7.7	8.2
Albany [5]	32	12.8	1	20	11.3	2	14.6	15.3
Atlanta [6]	52	9.6	7	68	13.9	7	13.9	15.8
White	25	7.0	4	59	9.6	1	10.8	12.5
Colored	27	14.8	3	86	22.4	6	19.9	22.1
Baltimore [6]	204	13.0	23	81	10.8	15	14.3	15.8
White	160	12.5	19	86	10.6	10	13.8	14.4
Colored	44	15.3	4	64	11.7	5	18.7	22.1
Birmingham [6]	48	9.1	6	63	12.2	3	11.7	14.6
White	25	7.6	2	33	10.3	2	9.3	11.4
Colored	23	11.4	4	108	15.2	1	15.6	20.0
Boston	190	12.6	11	33	10.8	17	15.3	15.3
Bridgeport	24	8.5	4	71	9.9	1	11.4	12.1
Buffalo	121	10.8	9	43	10.8	13	13.6	14.3
Cambridge	26	11.9	1	21	12.3	0	13.7	13.3
Camden	23	10.1	4	70	11.4	3	15.7	15.6
Canton	14	6.8	2	50	12.2	0	9.8	11.3
Chicago [5]	599	8.9	46	45	9.9	55	10.5	11.4
Cincinnati	119	13.5	6	30	14.3	5	15.8	16.8
Cleveland	159	9.0	9	29	9.3	15	11.6	12.0
Columbus	63	11.0	5	50	13.2	7	14.4	14.8
Dallas [6]	50	9.3	9		9.4	4	10.7	12.0
White	47	10.5	8		7.4	3	9.8	10.7
Colored	3	3.2	1		18.7	1	15.0	18.7
Dayton	33	8.3	2	29	10.7	1	12.7	13.1
Denver	67	11.9	1	10	13.2	5	15.4	14.9
Des Moines	19	6.8	1	17	13.0	0	11.9	11.5
Detroit	253	7.7	33	59	8.5	25	8.3	9.2
Duluth	27	13.8	2	58	10.2	1	11.3	11.2
El Paso	29	14.2	5		18.4	7	14.3	16.9
Erie	22	9.7	3	64	11.5	1	12.1	11.5
Evansville	25	12.3	0	0	11.5	2	10.3	11.9
Fall River [5] [7]	26	11.8	4	106	8.6	0	12.8	13.2
Flint	28	8.6	2	29	5.7	3	8.3	7.9
Fort Wayne	25	10.8	4	103	10.1	2	10.6	11.4
Forth Worth [6]	36	11.0	4		7.8	1	10.4	11.8
White	28	10.2	4		6.7	1	10.0	11.3
Colored	8	15.7	0		13.4	0	12.4	14.1
Grand Rapids	22	6.6	0	0	7.9	2	9.2	9.8
Hartford	33	10.2	3	40				
Houston [6]	67	10.8	10		11.6	10	11.1	11.5
White	43	9.4	6		10.6	8	10.3	10.6
Colored	24	14.6	4		14.4	2	13.3	14.0
Indianapolis [6]	66	9.2	5	41	13.3	4	13.2	14.4
White	54	8.6	3	28	11.6	4	12.9	14.0
Colored	12	13.6	2	137	25.4	0	15.7	18.0
Jersey City	67	10.9	7	58	10.0	6	11.9	12.8
Kansas City, Kans. [6]	23	9.7	3	66	11.5	1	12.9	14.2
White	17	8.9	2	54	10.5	0	12.4	13.2
Colored	6	13.2	1	128	15.5	1	14.8	18.7
Kansas City, Mo	95	11.9	7	79	12.1	2	12.7	14.3
Knoxville [6]	27	12.6	3	76	11.9	4	12.6	13.8
White	23	12.8	3	84	12.0	4	11.5	12.7
Colored	4	11.4	0	0	11.7	0	18.3	19.4
Long Beach	21	6.8	0	0	10.6	2	9.4	10.3
Los Angeles	274	10.4	21	62	9.4	25	11.0	11.2
Louisville [6]	83	14.1	9	82	15.2	8	13.7	15.6
White	69	13.8	8	83	12.0	4	12.4	13.9
Colored	14	15.3	1	75	32.8	4	20.8	25.0
Lowell [7]	25	13.0	2	52	16.6	2	14.8	13.6
Lynn	22	11.2	2	57	7.6	0	11.3	11.1
Memphis [6]	54	10.7	6	65	14.5	10	16.6	17.0
White	24	7.7	2	34	12.1	3	12.9	14.0
Colored	30	15.6	4	120	18.5	7	22.4	22.0
Miami [6]	24	11.0	1	28	9.7	0	12.0	12.9
White	15	8.9	1	39	7.8	0	10.8	11.9
Colored	9	18.6	0	0	16.5	0	15.9	16.3

See footnotes at end of table.

Deaths[1] *from all causes in certain large cities of the United States during the week ended June 18, 1932, infant mortality, annual death rate, and comparison with corresponding week of 1931*—Continued.

City	Week ended June 18, 1932				Corresponding week, 1931		Death rate [2] for the first 24 weeks	
	Total deaths	Death rate [2]	Deaths under 1 year	Infant-mortality rate [3]	Death rate [2]	Deaths under 1 year	1932	1931
Milwaukee	80	7.0	5	24	7.9	16	9.3	10.1
Minneapolis	89	9.7	2	13	9.6	8	11.0	11.8
Nashville [6]	42	14.0	3	45	13.7	5	15.3	17.4
White	32	14.7	3	59	11.6	4	14.0	15.1
Colored	10	12.2	0	0	19.5	1	18.8	23.4
New Bedford [7]	16	7.4	1	29	10.7	0	12.4	13.3
New Haven	40	12.9	5	100	9.3	1	13.0	12.7
New Orleans [6]	136	15.0	11	63	14.1	11	15.5	17.8
White	86	13.3	8	70	9.9	4	13.1	14.4
Colored	50	19.0	3	49	24.4	7	21.3	20.2
New York	1,313	9.5	106	47	9.4	99	11.5	12.4
Bronx Borough	173	6.5	13	38	6.7	14	8.5	9.0
Brooklyn Borough	451	8.8	39	43	8.6	43	10.7	11.4
Manhattan Borough	538	15.8	46	66	14.4	33	17.7	19.0
Queens Borough	128	5.5	7	29	5.8	6	7.3	8.0
Richmond Borough	23	7.2	1	20	12.8	3	14.3	14.3
Newark, N. J	80	9.3	9	49	10.4	9	11.4	12.7
Oakland	66	11.5	5	63	10.5	1	10.9	11.1
Oklahoma City	41	10.4	4	55	11.1	3	10.6	12.0
Omaha	45	10.7	2	23	11.3	6	13.8	14.5
Paterson	34	12.8	2	36	10.9	2	13.3	14.9
Peoria	15	7.1	1	28	11.5	2	11.7	12.9
Philadelphia	433	11.4	30	46	12.0	42	13.5	14.9
Pittsburgh	137	10.5	17	78	12.7	13	13.8	16.3
Portland, Oreg	62	10.4	0	0	12.2	6	11.8	12.3
Providence	60	12.2	5	48	10.2	5	14.4	14.2
Richmond [6]	35	9.9	2	30	12.2	2	14.3	16.9
White	18	7.1	2	45	11.5	2	11.7	14.4
Colored	17	16.8	0	0	13.8	0	20.7	23.3
Rochester	71	11.1	7	67	9.9	3	12.7	13.0
St. Louis	167	10.5	20	71	11.0	8	14.2	16.4
St. Paul	55	10.3	3	32	9.6	2	11.0	11.4
Salt Lake City [5]	31	11.2	2	31	10.9	4	11.1	12.7
San Antonio	60	12.7	16		16.1	24	14.3	16.2
San Diego	31	9.9	3	65	12.3	3	14.8	14.7
San Francisco	180	10.3	1	7	11.7	0	13.0	13.6
Schenectady	13	7.0	2	58	6.0	1	11.1	11.1
Seattle	79	11.0	6	60	10.0	2	12.2	12.3
Somerville	16	7.9	0	0	8.4	2	9.8	10.5
South Bend	11	6.6	2	58	7.2	2	7.9	8.8
Spokane	25	11.2	1	27	13.0	5	12.5	12.8
Springfield, Mass	40	13.5	7	118	9.2	4	11.9	13.2
Syracuse	49	11.9	3	39	11.3	5	12.4	12.4
Tacoma	20	9.6	2	55	7.7	0	12.8	13.0
Tampa [6]	25	12.1	2	57	13.4	3	12.3	12.9
White	21	12.9	1	35	14.5	2	11.8	12.0
Colored	4	9.2	1	158	9.4	1	14.3	16.4
Toledo	48	8.3	9	98	9.8	11	12.3	12.9
Trenton	26	10.9	1	20	10.5	2	16.6	18.1
Utica	28	14.2	2	57	9.2	0	16.6	15.4
Washington, D. C.[6]	140	14.8	23	129	14.0	10	17.3	17.1
White	91	13.3	8	66	12.4	7	15.5	14.6
Colored	49	18.7	15	267	18.2	3	22.2	23.5
Waterbury	15	7.7	2	66	9.8	2	9.9	10.4
Wilmington, Del.[7]	17	8.3	5	113	8.8	3	16.1	15.5
Worcester	34	8.9	5	70	9.0	3	13.2	13.8
Yonkers	10	3.7	2	52	10.5	0	8.1	9.6
Youngstown	23	6.9	4	65	11.8	5	10.4	11.0

[1] Deaths of nonresidents are included. Stillbirths are excluded.
[2] These rates represent annual rates per 1,000 population, as estimated for 1932 and 1931 by the arithmetical method.
[3] Deaths under 1 year of age per 1,000 estimated live births. Cities left blank are not in the registration area for births.
[4] Data for 81 cities.
[5] Deaths for week ended Friday.
[6] For the cities for which deaths are shown by color, the percentages of colored population in 1930 were as follows: Atlanta, 33; Baltimore, 18; Birmingham, 38; Dallas, 17; Fort Worth, 16; Houston, 27; Indianapolis, 12; Kansas City, Kans., 19; Knoxville, 16; Louisville, 15; Memphis, 38; Miami, 23; Nashville, 28; New Orleans, 29; Richmond, 29; Tampa, 21; and Washington, D. C., 27.
[7] Population Apr. 1, 1930; decreased 1920 to 1930, no estimate made.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended June 25, 1932, and June 27, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 25, 1932, and June 27, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended June 25, 1932	Week ended June 27, 1931	Week ended June 25, 1932	Week ended June 27, 1931	Week ended June 25, 1932	Week ended June 27, 1931	Week ended June 25, 1932	Week ended June 27, 1931
New England States:								
Maine	3	2		1	45	45	0	1
New Hampshire	2				27	17	0	0
Vermont	1				116	55	0	0
Massachusetts	33	44	1	1	828	452	1	1
Rhode Island	5	2			15	102	0	0
Connecticut	4	4		1	198	205	0	1
Middle Atlantic States:								
New York	79	94	[1] 5	[1] 5	1,618	1,920	6	12
New Jersey	21	24	2	3	592	629	0	2
Pennsylvania	63	71			678	1,410	1	16
East North Central States:								
Ohio	19	31	8	12	427	933	0	6
Indiana [3]	14	16	10	3	71	162	6	6
Illinois	43	115	19	5	482	1,157	8	5
Michigan	29	27	1		1,710	205	2	1
Wisconsin	13	6	2	9	877	442	1	1
West North Central States:								
Minnesota	3	9	1		36	108	0	0
Iowa	10	2			3	23	2	0
Missouri	27	19			24	92	2	2
North Dakota		11			35	45	0	2
South Dakota	5	5			2	5	0	0
Nebraska	9	8			5	3	0	0
Kansas	4	4			126	59	0	1
South Atlantic States:								
Delaware	1	4				60	0	0
Maryland [3]	4	13	2	1	18	274	1	2
District of Columbia	5	9		1	14	32	0	0
Virginia							1	
West Virginia	11	5	7	3	110	204	0	0
North Carolina [4]	6	8	7	1	415	343	0	1
South Carolina	2	5	186	142	129	60	0	0
Georgia [4]	4	5	55	5	52	44	0	0
Florida [4]	5	7	2		6	28	0	1
East South Central States:								
Kentucky	12					24	2	2
Tennessee	4	2	9	3	4	21	0	3
Alabama [4]	8	6	12		5	28	1	2
Mississippi	4	4					0	1

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 25, 1932, and June 27, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended June 25, 1932	Week ended June 27, 1931	Week ended June 25, 1932	Week ended June 27, 1931	Week ended June 25, 1932	Week ended June 27, 1931	Week ended June 25, 1932	Week ended June 27, 1931
West South Central States:								
Arkansas		2	8	1		15	0	1
Louisiana	17	19	13	4	12	2	0	0
Oklahoma [5]	2	5	9	5	24	16	0	0
Texas	18	9	15	12	22	69	0	0
Mountain States:								
Montana		2	2		53	21	0	0
Idaho	1		1		1	6	0	1
Wyoming	2				38	24	1	0
Colorado	4	5			65	68	0	0
New Mexico	5	6			35	30	0	0
Arizona	3	4	1		12	5	0	1
Utah [3]				3	2	10	0	
Pacific States:								
Washington	7	7			133	36	0	0
Oregon	1	2	18	5	116	30	1	0
California	42	54	28	12	283	393	2	3
Total	555	677	424	238	9,464	9,912	33	75

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended June 25, 1932	Week ended June 27, 1931	Week ended June 25, 1932	Week ended June 27, 1931	Week ended June 25, 1932	Week ended June 27, 1931	Week ended June 25, 1932	Week ended June 27, 1931
New England States.								
Maine	0	0	13	6	0	0	0	2
New Hampshire	0	0	15	1	0	0	0	0
Vermont	0	0	4	7	2	12	0	0
Massachusetts	0	5	289	178	0	0	7	5
Rhode Island	0	0	19	25	0	0	1	0
Connecticut	3	2	52	26	0	0	1	1
Middle Atlantic States.								
New York	7	7	541	378	0	15	8	13
New Jersey	0	1	158	149	0	0	3	6
Pennsylvania	0	0	368	426	0	1	10	14
East North Central States								
Ohio	1	2	77	221	15	32	18	9
Indiana [2]	0	1	24	45	2	62	5	8
Illinois	1	2	173	266	15	51	18	12
Michigan	2	1	402	274	5	13	5	3
Wisconsin	2	0	40	38	0	4	2	3
West North Central States								
Minnesota	3	1	31	29	1	5	0	2
Iowa	0	0	13	15	15	14	5	1
Missouri	0	0	21	28	0	9	10	6
North Dakota	0	1	11	13	2	19	3	1
South Dakota	1	0	4	8	0	4	0	1
Nebraska	0	0	8	13	11	12	0	0
Kansas	2	0	13	11	11	59	7	6
South Atlantic States:								
Delaware	0	0	4	1	0	0	0	0
Maryland [3]	0	0	38	35	0	0	10	6
District of Columbia	1	0	5	8	0	0	1	0
Virginia								
West Virginia	0	2	11	15	1	4	20	6
North Carolina [4]	1	2	14	22	4	0	35	31
South Carolina	2	1	1	3	0	4	44	47
Georgia [4]	0	1	3	15	1	0	41	26
Florida [4]	0	1	1	1	4	0	5	6
East South Central States:								
Kentucky	0	1	25	35	5	4	48	1
Tennessee	1	0	19	11	2	2	67	13
Alabama [4]	0	1	10	9	23	6	18	20
Mississippi	1	0	7	6	4	20	35	23

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 25, 1932, and June 27, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended June 25, 1932	Week ended June 27, 1931	Week ended June 25, 1932	Week ended June 27, 1931	Week ended June 25, 1932	Week ended June 27, 1931	Week ended June 25, 1932	Week ended June 27, 1931
West South Central States:								
Arkansas	0	0	2	1	2	14	25	8
Louisiana	0	2	14	7	1	2	24	34
Oklahoma [5]	2	1	6	9	18	46	16	12
Texas	4	0	11	7	7	7	25	5
Mountain States:								
Montana	0	1	3	5	8	3	0	3
Idaho	0	0	1	2	1	6	0	3
Wyoming	0	0	6	2	0	1	1	0
Colorado	0	0	20	18	0	5	3	4
New Mexico	0	0	2	0	0	0	5	4
Arizona	0	0	2	0	0	1	13	4
Utah [3]	0	0	2	7	0	0	1	1
Pacific States:								
Washington	3	0	15	16	2	8	2	2
Oregon	0	0	13	9	2	9	2	5
California	5	4	75	73	37	17	9	18
	42	40	2,586	2,474	201	471	553	875

[1] New York City only.
[2] A later report states that the numbers of cases of meningitis and typhoid fever for the week ended June 4, 1932, Public Health Reports dated June 17, should have been 5 and 9 respectively.
[3] Week ended Friday.
[4] Typhus fever, 20 cases: 1 case in North Carolina, 6 cases in Georgia, 1 case in Florida, and 12 cases in Alabama.
[5] Figures for 1932 are exclusive of Oklahoma City and Tulsa, and for 1931 are exclusive of Tulsa only.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
May, 1932										
Alabama	7	38	154	132	38	150	1	25	52	27
Arkansas	2	22	78	48	6	200	1	7	28	10
California	15	260	227	5	2,768	3	9	708	67	51
Georgia	4	36	404	100	298	49	3	37		82
Idaho		14	6		9		0	19	3	2
Kansas	6	30	5		1,435	1	1	128	29	13
Louisiana	5	106	40	45	230	33	2	52	33	74
Maine		11	28	1	923			78	0	12
Minnesota	6	28	7		207			437	27	9
Missouri	6	126	23	8	332			190		15
Montana	2	1	25		411		1	62	14	8
Nevada			55		13		0	3	0	2
New York	18	420		1	11,277		10	5,984	8	48

May, 1932	Cases
Actinomycosis:	
Montana	1
Anthrax:	
New York	1
Botulism:	
Montana	5
Chicken pox:	
Alabama	93
Arkansas	12
California	3,527
Georgia	86
Chicken pox—Continued.	Cases
Idaho	43
Kansas	474
Louisiana	55
Maine	86
Minnesota	277
Missouri	285
Montana	94
Nevada	16
New York	2,617
Conjunctivitis:	
Maine	15

	Cases
Dysentery:	
California (amebic)	14
California (bacillary)	13
Georgia	35
Louisiana	4
Minnesota	1
Missouri	6
New York	9
Favus:	
Montana	1
Food poisoning:	
California	31
German measles:	
California	89
Kansas	6
Maine	261
Montana	1
New York	220
Granuloma, coccidioidal:	
California	2
Hookworm disease:	
Arkansas	1
California	1
Louisiana	79
Impetigo contagiosa:	
Montana	1
Jaundice:	
California	2
Montana	1
Leprosy:	
California	5
Louisiana	1
Lethargic encephalitis:	
Alabama	3
California	3
Georgia	1
Kansas	2
Louisiana	1
Minnesota	2
New York	6
Mumps:	
Alabama	139
Arkansas	45
California	806
Georgia	109
Idaho	36
Kansas	301
Louisiana	2
Maine	32
Missouri	213
Montana	46
New York	1,714
Ophthalmia neonatorum	
California	2
Maine	2
Minnesota	1
New York	2
Paratyphoid fever:	
Arkansas	1
California	2
Georgia	2
New York	9
Psittacosis:	
California	1
Puerperal septicemia:	
New York	23

	Cases
Rabies in animals:	
California	40
Louisiana	2
Maine	1
Missouri	6
New York	[1] 11
Rocky Mountain spotted or tick fever:	
California	3
Idaho	9
Montana	46
Nevada	5
Scabies.	
Kansas	5
Montana	4
Septic sore throat:	
California	17
Georgia	24
Kansas	2
Minnesota	8
Missouri	3
Montana	1
New York	30
Tetanus:	
California	2
Kansas	2
Louisiana	3
New York	6
Tick paralysis:	
Montana	2
Trachoma:	
Arkansas	3
California	13
Kansas	2
Montana	6
New York	1
Trichinosis:	
New York	2
Tularaemia:	
Alabama	4
California	1
Georgia	2
Idaho	2
Kansas	1
Louisiana	2
Missouri	5
Montana	2
Nevada	2
Typhus fever:	
Alabama	9
Georgia	14
New York	2
Undulant fever:	
Alabama	4
California	6
Georgia	1
Kansas	4
Louisiana	3
Minnesota	8
Missouri	12
New York	13
Vincent's angina:	
Kansas	28
Maine	6
Montana	2
New York	[1] 96

[1] Exclusive of New York City.

Whooping cough:	Cases
Alabama	178
Arkansas	72
California	1,696
Georgia	99
Kansas	548
Louisiana	86
Whooping cough—Continued.	Cases
Maine	83
Minnesota	219
Missouri	155
Montana	46
Nevada	33
New York	2,141

PATIENTS IN INSTITUTIONS FOR EPILEPTICS, OCTOBER-DECEMBER, 1930

Reports for the fourth quarter of the year 1930 were received by the Public Health Service from 14 institutions for the care and treatment of epileptics, located in 14 States. The total number of patients, including those on parole or otherwise absent but still on the books, on December 31, 1930, was 11,085.

The first admissions were as follows:

	Male	Female	Total
October	95	63	158
November	76	62	138
December	89	67	156
Total	260	192	452

Of the new admissions during the three months, 57.5 per cent were males and 42.5 per cent were females, giving a ratio of 135 males per 100 females.

During the quarter 152 patients were discharged, 110 males and 42 females. Ninety male patients and 58 female patients died. The annual death rates, based on the number of patients on the rolls of the institutions on December 31, 1930, were: Males, 61.8 per 1,000; females, 43.4 per 1,000; total patients, 53 per 1,000.

The following table shows for the 14 institutions the numbers of patients in the hospitals and on parole on October 1, 1930, and at the end of each month of the fourth quarter of the year.

	Oct. 1, 1930	Oct 31, 1930	Nov. 30, 1930	Dec. 31, 1930
Patients in hospitals:				
Male	5,287	5,304	5,345	5,305
Female	4,974	5,016	5,030	4,991
Total	10,261	10,320	10,375	10,296
Patients on parole:				
Male	398	410	412	472
Female	236	228	251	317
Total	634	638	663	789
Total patients:				
Male	5,685	5,714	5,757	5,777
Female	5,210	5,244	5,281	5,308
Total	10,895	10,958	11,038	11,085
Per cent of total patients on parole:				
Male	7.0	7.2	7.2	8.2
Female	4.5	4.3	4.8	6.0
Total	5.8	5.8	6.0	7.1

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 96 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 33,960,000. The estimated population of the 89 cities reporting deaths is more than 32,400,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended June 18, 1932, and June 20, 1931

	1932	1931	Estimated expectancy
Cases reported			
Diphtheria:			
46 States	604	768	
96 cities	303	422	627
Measles:			
45 States	12,450	11,591	
96 cities	4,008	4,613	
Meningococcus meningitis:			
46 States	44	71	
96 cities	27	32	
Poliomyelitis:			
46 States	29	37	
Scarlet fever:			
46 States	3,287	2,951	
96 cities	1,641	1,416	935
Small pox:			
46 States	198	589	
96 cities	17	48	41
Typhoid fever:			
46 States	450	219	
96 cities	62	58	60
Deaths reported			
Influenza and pneumonia:			
89 cities	415	466	
Small pox.			
89 cities	0	0	

City reports for week ended June 18, 1932

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded, and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1923 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	3	0	0		0	1	2	2
New Hampshire:								
Concord	0	0	0		0	0	0	0
Manchester	0	0	0		0	0	0	0
Nashua	2	1	0		0	0	0	0

City reports for week ended June 18, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND—con.								
Vermont:								
Barre	0	0	0		0	0	2	0
Burlington	1	0	0		0	1	2	0
Massachusetts:								
Boston	37	23	19		1	145	76	18
Fall River	2	2	1		0	31	1	2
Springfield	31	2	0		0	166	4	1
Worcester	13	2	1		0	43	6	8
Rhode Island:								
Pawtucket	0	0	0		0	0	0	0
Providence	3	4	5		0	6	2	3
Connecticut:								
Bridgeport	1	4	0		0	40	0	1
Hartford	3	3	0		0	8	7	2
New Haven	11	0	0		1	2	20	1
MIDDLE ATLANTIC								
New York:								
Buffalo	18	8	0		0	30	2	11
New York	232	205	95	9	6	490	218	97
Rochester	3	4	0		0	6	8	2
Syracuse	5	1	0		0	119	12	0
New Jersey:								
Camden	0	5	3		0	0	1	3
Newark	28	11	2	7	0	105	177	4
Trenton	4	2	1		0	2	3	2
Pennysivania.								
Philadelphia	81	48	8	4	5	9	61	31
Pittsburgh	49	13	4		0	48	12	20
Reading	7	1	0		0	11	0	0
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	5	4	1		1	3	0	7
Cleveland	48	20	4	4	1	209	50	8
Columbus	2	2	1		0	52	2	1
Toledo	28	3	0		0	80	3	1
Indiana.								
Fort Wayne	1	1	3		0	0	0	5
Indianapolis	15	1	1		0	6	25	7
South Bend	0	0	0		0	1	0	1
Terre Haute	2	0	2		0	19	0	0
Illinois:								
Chicago	113	79	19		0	306	14	19
Springfield	3	0	0		0	0	0	4
Michigan:								
Detroit	59	36	23	1	3	899	61	13
Flint	11	1	1	3	1	20	4	1
Grand Rapids	2	1	0		0	23	10	0
Wisconsin:								
Kenosha	0	0	0		0	224	0	0
Madison	3	1	0		0	2	1	
Milwaukee	80	9	1	1	1	337	11	5
Racine	26	0	1		0	20	16	0
Superior	6	0	0		0	0	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth	7	0	0		0	1	2	2
Minneapolis	16	9	4		1	7	25	1
St. Paul	36	4	0	1	1	7	20	0
Iowa:								
Des Moines	0	1	5			0	0	
Sioux City	9	0	1			0	0	
Waterloo	1	0	0			0	0	
Missouri:								
Kansas City	11	2	1		0	22	4	5
St. Joseph	1	0	6		0	0	1	0
St. Louis	22	25	19			8	6	4

City reports for week ending June 18, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
WEST NORTH CENTRAL—continued								
North Dakota:								
Fargo	7	0	0	----------	0	2	0	0
Grand Forks	0	0	0	----------	----------	23	0	----------
South Dakota:								
Aberdeen	3	0	0	----------	----------	1	0	----------
Sioux Falls	0	0	1	----------	----------	3	0	----------
Nebraska:								
Omaha	7	2	3	----------	0	2	1	4
Kansas:								
Topeka	24	0	0	----------	0	18	2	0
Wichita	1	1	0	----------	0	5	2	2
SOUTH ATLANTIC								
Delaware:								
Wilmington	1	0	0	----------	0	0	0	3
Maryland:								
Baltimore	74	15	5	3	2	10	78	13
Cumberland	1	0	0	----------	0	15	0	2
Frederick	0	0	0	----------	0	0	0	0
District of Columbia:								
Washington	30	7	4	----------	0	24	0	7
Virginia:								
Lynchburg	4	1	0	----------	0	0	0	2
Norfolk	3	0	0	----------	0	0	0	2
Richmond	2	1	1	----------	0	0	0	1
Roanoke	0	0	0	----------	0	0	0	0
West Virginia:								
Charleston	0	0	0	----------	0	5	0	0
Huntington	0	----------	1	----------	----------	4	0	----------
Wheeling	2	0	0	----------	0	45	1	1
North Carolina:								
Raleigh	1	0	0	----------	0	0	0	0
Wilmington	0	0	0	----------	0	0	0	1
Winston-Salem	1	0	0	----------	0	58	2	----------
South Carolina:								
Charleston	0	0	0	5	0	0	0	0
Columbia	3	0	0	----------	0	30	1	0
Greenville	0	0	0	----------	0	18	0	0
Georgia:								
Atlanta	3	1	0	7	2	1	0	7
Brunswick	0	0	0	----------	0	0	0	0
Savannah	0	1	0	8	0	12	0	1
Florida:								
Miami	0	1	2	----------	0	2	0	1
Tampa	1	1	1	6	0	0	0	1
EAST SOUTH CENTRAL								
Kentucky:								
Covington	----------	1	----------	----------	----------	----------	----------	----------
Tennessee:								
Memphis	0	1	1	----------	0	----------	0	0
Nashville	0	0	0	----------	0	2	0	0
Alabama:								
Birmingham	1	0	0	3	0	4	1	0
Mobile	0	0	0	----------	0	0	0	1
Montgomery	0	0	0	----------	----------	0	0	----------
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith	0	1	0	----------	----------	0	1	----------
Little Rock	0	0	0	----------	1	0	0	4
Louisiana:								
New Orleans	0	6	12	1	1	0	0	9
Shreveport	1	1	0	----------	0	3	4	1
Texas:								
Dallas	2	3	5	1	1	2	0	0
Fort Worth	1	1	1	----------	0	0	0	1
Galveston	0	0	0	----------	0	0	0	2
Houston	0	2	6	----------	0	11	0	5
San Antonio	1	2	0	----------	1	2	1	3

City reposts for week ending June 18, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
MOUNTAIN								
Montana:								
Billings	0	0	0		0	0	0	0
Great Falls	1	0	0		0	8	0	2
Helena	6	0	0		0	1	0	0
Missoula	0	0	0		0	0	0	1
Idaho.								
Boise		0						
Colorado:								
Denver	33	5	1		0	55	39	2
Pueblo	3	0	1		0	0	0	0
New Mexico:								
Albuquerque	3	0	0		0	5	0	0
Arizona:								
Phoenix	0	1	0		0	0	0	0
Utah:								
Salt Lake City	50	3	1		0	0	10	0
Nevada:								
Reno	0	0	0		0	0	0	0
PACIFIC								
Washington:								
Seattle	22	2	3			26	6	
Spokane	20	3	0			20	0	
Tacoma	6	2	1		0	51	2	2
Oregon.								
Portland	2	4	9		0	66	2	4
Salem	0	0	1	3	0	4	4	
California:								
Los Angeles	83	24	27	19	0	17	20	16
Sacramento	15	1	3		0	4	0	1
San Francisco	32	9	1	6	1	89	4	4

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	2	1	0	0	0	0	1	0	0	0	22
New Hampshire:											
Concord	0	5	0	0	0	1	0	0	0	0	10
Manchester	0	9	0	0		0	0	0	0	0	8
Nashua	1	0	0	0		0	0	0	0	0	
Vermont:											
Barre	0	0	0	0	0	0	0	0	0	0	1
Burlington	0	0	0	0	0	0	0	0	0	0	8
Massachusetts:											
Boston	56	90	0	0	0	12	1	0	0	17	190
Fall River	3	4	0	0	0	2	0	0	0	2	26
Springfield	6	10	0	0	0	0	0	1	0	7	37
Worcester	8	21	0	0	0	0	0	1	0	0	34
Rhode Island.											
Pawtucket	2	0	0	0	0	0	0	0	0	0	10
Providence	8	22	0	0	0	6	1	0	0	12	60
Connecticut.											24
Bridgeport	6	2	0	0	0	2	0	0	0	2	39
Hartford	2	10	0	0	0	0	0	0	0	3	40
New Haven	2	9	0	0	0	1	0	0	0	5	
MIDDLE ATLANTIC											
New York:											
Buffalo	19	52	0	0	0	9	0	0	0	18	119
New York	174	358	0	0	0	70	10	4	0	148	1,313
Rochester	8	33	0	0	0	3	0	2	0	2	71
Syracuse	6	13	0	0	0	4	0	0	0	39	49

City reports for week ending June 18, 1932—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
MIDDLE ATLANTIC—continued											
New Jersey:											
Camden	4	21	0	0	0	0	0	0	0	4	23
Newark	18	28	0	0	0	6	0	2	0	18	83
Trenton	3	7	0	0	0	4	0	0	0	8	26
Pennsylvania:											
Philadelphia	68	124	0	0	0	35	1	8	0	77	433
Pittsburgh	27	78	0	0	0	5	0	0	0	22	137
Reading	3	12	0	0	0	1	0	0	0	12	17
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	14	29	2	0	0	11	1	2	1	6	119
Cleveland	80	49	0	0	0	10	1	0	0	82	159
Columbus	5	1	0	0	0	4	0	0	0	2	63
Toledo	11	1	0	0	0	1	0	2	0	54	58
Indiana:											
Fort Wayne	2	0	1	0	0	0	0	0	0	2	25
Indianapolis	9	2	6	0	0	2	0	0	0	31	
South Bend	2	1	0	0	0	0	0	0	0	3	14
Terre Haute	1	0	0	0	0	0	0	1	0	2	16
Illinois:											
Chicago	94	169	1	0	0	39	2	2	0	85	599
Springfield	2	0	0	1	0	0	0	1	0	0	20
Michigan:											
Detroit	89	291	0	0	0	20	1	1	1	148	253
Flint	11	2	1	0	0	1	0	0	0	19	28
Grand Rapids	7	3		0	0	0	0	0	0	13	22
Wisconsin:											
Kenosha	1	3	0	0	0	0	0	0	0	7	6
Madison	2	1	0	0			0	0		19	
Milwaukee	21	26	0	0	0	10	0	0	0	81	80
Racine	3	0	0	0	0	0	0	0	0	0	7
Superior	2	1	0	0	0	0	0	0	0	1	4
WEST NORTH CENTRAL											
Minnesota:											
Duluth	6	2	0	0	0	0	0	0	0	0	26
Minneapolis	21	2	0	0	0	4	0	0	0	19	89
St. Paul	13	2	0	1	0	2	0	0	0	34	59
Iowa:											
Des Moines	3	3	3	0			0	0		2	19
Sioux City	0	0	0	2			0	0		1	
Waterloo	0	0	0	0			0	0		1	
Missouri:											
Kansas City	7	6	0	0	0	9	0	2	0	7	95
St. Joseph	1	0	1	0	0	1	0	0	1	1	23
St. Louis	37	8	2	0	0	9	3	0	0	17	167
North Dakota:											
Fargo	1	0	0	0	0	0	0	0	0	0	3
Grand Forks	1	0	0	0			0	0		0	
South Dakota:											
Aberdeen	0	0	0	0			0	0		0	
Sioux Falls	0	0	0	0			0	0		0	7
Nebraska:											
Omaha	3	3	3	2	0	1	0	0	0	2	45
Kansas:											
Topeka	1	0	0	0	0	0	0	1	0	26	8
Wichita	2	0	1	0	0	1	0	0	0	9	28
SOUTH ATLANTIC											
Delaware:											
Wilmington	3	5	0	0	0	1	0	0	0	1	17
Maryland:											
Baltimore	27	22	0	0	0	13	2	1	0	74	204
Cumberland	0	2	0	0	0	0	0	1	0	0	13
Frederick	0	2	0	0	0	0	0	0	0	0	5
District of Col.:											
Washington	15	10	0	0	0	14	1	0	0	14	140

City reports for week ending June 18, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
SOUTH ATLANTIC—continued											
Virginia:											
Lynchburg	1	1	0	0	0	0	0	0	0	36	12
Norfolk	1	0	0	0	0	2	0	0	0	3	26
Richmond	1	3	0	0	0	1	1	0	0	0	39
Roanoke	0	0	0	0	0	0	1	0	0	1	12
West Virginia:											
Charleston	1	2	0	0	0	0	0	7	1	0	11
Huntington	-------	0	-------	0	-------	-------	-------	0	-------	0	-------
Wheeling	1	0	0	0	0	3	0	1	0	6	14
North Carolina:											
Raleigh	0	0	1	0	0	0	0	0	0	1	19
Wilmington	0	0	0	0	0	0	0	0	0	2	3
Winston-Salem	0	3	0	0	0	-------	1	0	0	18	-------
South Carolina:											
Charleston	0	0	1	0	0	1	0	0	0	0	15
Columbia	0	0	0	0	0	0	2	1	0	11	-------
Greenville	0	0	0	0	0	0	0	0	0	0	-------
Georgia:											
Atlanta	5	2	2	0	0	2	3	0	0	7	52
Brunswick	0	0	0	0	0	0	0	0	0	1	3
Savannah	1	0	0	0	0	1	1	3	0	0	15
Florida:											
Miami	1	0	0	0	0	4	0	0	0	0	24
Tampa	0	0	0	0	0	1	0	1	1	0	25
EAST SOUTH CENTRAL											
Kentucky:											
Covington	1	-------	1	-------	-------	-------	0	-------	-------	-------	-------
Tennessee:											
Memphis	3	1	1	1	0	3	2	0	0	16	54
Nashville	1	0	1	0	0	4	1	2	0	9	42
Alabama:											
Birmingham	0	0	1	0	0	5	1	2	1	5	48
Mobile	0	0	0	1	0	2	0	0	0	0	24
Montgomery	0	0	0	0	-------	-------	1	2	-------	7	-------
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	0	0	0	-------	-------	0	0	-------	3	-------
Little Rock	0	0	0	0	0	2	0	0	0	0	7
Louisiana:											
New Orleans	4	2	0	0	0	14	3	2	2	0	136
Shreveport	1	0	0	0	0	0	1	0	0	3	27
Texas:											
Dallas	2	2	1	0	0	5	1	3	0	22	50
Fort Worth	1	4	1	1	0	1	1	1	0	0	36
Galveston	0	0	0	0	0	1	0	0	0	0	14
Houston	1	0	1	0	0	6	1	0	0	0	67
San Antonio	0	0	0	0	0	5	1	0	0	0	60
MOUNTAIN											
Montana:											
Billings	0	0	0	0	0	0	0	0	0	0	7
Great Falls	1	0	1	0	0	0	0	0	0	0	8
Helena	0	0	0	0	0	0	0	0	0	0	3
Missoula	1	0	0	0	0	0	0	0	0	0	1
Idaho:											
Boise	0	-------	0	-------	-------	-------	0	-------	-------	-------	-------
Colorado:											
Denver	7	18	0	0	0	4	0	0	0	22	64
Pueblo	0	0	0	0	0	0	0	0	0	2	5
New Mexico:											
Albuquerque	0	0	0	0	0	2	0	0	0	2	9
Arizona:											
Phoenix	0	0	0	0	-------	2	1	0	0	0	-------
Utah:											
Salt Lake City	2	0	1	0	0	1	0	0	0	17	31
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	2

City reports for week ending June 18, 1932—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
PACIFIC											
Washington:											
Seattle	7	6	1	5			1	2		1	
Spokane	3	1	4	1			1	0		2	
Tacoma	2	1	2	0	0	0	0	0	0	0	20
Oregon:											
Portland	3	0	7	4	0	3	1	0	0	2	
Salem	0	0	0	0		0	0	0	0	0	
California:											
Los Angeles	22	50	4	3	0	14	1	2	0	83	274
Sacramento	2	0	1	0	0	4	1	3	0	2	23
San Francisco	14	8	0	0	0	7	1	1	0	6	130

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	1	0	0	0	0	0	0	0	0
Connecticut:									
Bridgeport	1	0	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York [1]	6	3	1	1	0	0	1	1	0
Pennsylvania:									
Philadelphia	1	0	0	0	0	0	0	0	0
Pittsburgh	1	1	1	0	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	0	0	0	0	1	0	0	0	0
Cleveland	2	0	0	0	0	0	0	1	0
Indiana:									
Indianapolis	4	0	0	0	0	0	0	0	0
Illinois:									
Chicago	7	2	0	0	0	0	0	1	1
Michigan:									
Detroit	1	1	1	0	0	0	0	0	0
WEST NORTH CENTRAL									
Missouri:									
Kansas City	0	0	0	0	1	1	0	0	0
St. Joseph	1	1	0	0	0	0	0	0	0
St. Louis	0	0	0	1	0	0	0	0	0
North Dakota:									
Fargo	0	0	1	0	0	0	0	0	0
Kansas:									
Topeka	1	0	0	0	0	0	0	0	0
Wichita	1	1	0	0	0	0	0	0	0
SOUTH ATLANTIC [1]									
Maryland:									
Baltimore	0	0	0	0	1	1	0	0	0
North Carolina:									
Raleigh	0	0	0	0	1	1	0	0	0
Winston-Salem	0	0	0	0	0	1	0	0	0

[1] Typhus fever, 4 cases and 1 death: 1 case at New York City, N. Y.; 1 case at Atlanta, Ga.; 1 case at Savannah, Ga.; and 1 case and 1 death at Tampa, Fla.

City reports for week ending June 18, 1932—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
SOUTH ATLANTIC—continued									
South Carolina.									
Charleston	0	0	0	1	0	1	0	0	0
Florida.[1]									
Miami	0	0	0	0	0	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Nashville	0	0	0	0	0	0	0	0	2
Alabama:									
Birmingham	0	0	0	0	1	0	1	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans	0	0	0	0	0	0	0	1	0
Texas.									
Dallas	0	0	0	0	0	1	0	0	0
Fort Worth	0	0	0	0	0	1	0	0	0
San Antonio	0	0	0	0	0	0	0	1	7
MOUNTAIN									
Arizona:									
Phoenix	0	0	0	0	0	0	0	1	0
Utah:									
Salt Lake City	0	1	0	0	0	0	0	0	0
PACIFIC									
California.									
Los Angeles	0	0	0	0	0	1	1	1	0
San Francisco	0	0	0	0	1	0	0	0	0

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended June 18, 1932, compared with those for a like period ended June 20, 1931. The population figures used in computing the rates are estimated mid-year populations for 1931 and 1932, respectively, derived from the 1930 census. The 98 cities reporting cases have an estimated aggregate population of more than 34,000,000. The 91 cities reporting deaths have more than 32,400,000 estimated population.

Summary of weekly reports from cities, May 15 to June 18, 1932—Annual rates per 100,000 population, compared with rates for the corresponding period of 1931 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	May 21, 1932	May 23, 1931	May 28, 1932	May 30, 1931	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931	June 18, 1932	June 20, 1931
98 cities	39	62	[2] 48	59	[3] 45	67	[4] 42	54	[5] 47	66
New England	41	48	55	50	46	46	84	41	62	41
Middle Atlantic	14	63	43	58	46	74	31	55	50	65
East North Central	36	67	36	81	35	75	[6] 34	64	34	89
West North Central	83	75	66	54	57	55	59	61	64	52
South Atlantic	33	38	25	42	27	40	27	49	22	44
East South Central	12	12	[8] 6	18	[8] 31	12	[8] 6	18	[8] 6	6
West South Central	96	81	135	54	59	68	89	27	76	85
Mountain	52	61	[7] 36	52	26	191	43	35	[8] 27	26
Pacific	86	73	67	37	80	49	59	53	67	71

See footnotes at end of table.

Summary of weekly reports from cities, May 15 to June 18, 1932—Annual rates per 100,000 population, compared with rates for the corresponding period of 1931—Continued

MEASLES CASE RATES

	Week ended—									
	May 21, 1932	May 23, 1931	May 28, 1932	May 30, 1931	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931	June 18, 1932	June 20, 1931
98 cities	1,137	1,373	[2] 1,022	1,115	[3] 826	1,096	[4] 855	876	[5] 617	719
New England	951	1,190	1,376	935	1,124	933	1,177	601	1,059	635
Middle Atlantic	534	1,479	557	1,188	413	1,102	525	839	363	664
East North Central	2,908	1,457	2,379	1,302	1,952	1,445	[6] 1,868	1,303	1,298	1,159
West North Central	188	1,098	176	641	172	817	176	448	136	331
South Atlantic	498	2,845	490	2,093	333	1,476	512	1,104	392	768
East South Central	6	1,245	[3] 12	1,057	[3] 187	1,151	[3] 25	828	[3] 37	852
West South Central	46	271	40	294	49	254	73	149	59	88
Mountain	844	618	[7] 562	461	957	870	465	705	[8] 572	609
Pacific	664	457	748	492	522	512	611	580	394	302

SCARLET FEVER CASE RATES

	May 21, 1932	May 23, 1931	May 28, 1932	May 30, 1931	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931	June 18, 1932	June 20, 1931
98 cities	384	368	[2] 397	306	[3] 302	310	[4] 278	269	[5] 253	222
New England	693	536	645	351	546	414	410	291	417	272
Middle Atlantic	570	442	506	305	418	355	377	318	321	280
East North Central	354	412	428	437	338	422	[6] 354	386	344	310
West North Central	188	341	174	291	135	258	102	168	44	132
South Atlantic	208	241	194	239	147	198	120	123	102	77
East South Central	17	394	[3] 56	300	[3] 6	153	[3] 37	170	[3] 6	94
West South Central	49	85	53	51	43	41	23	88	13	30
Mountain	148	270	[7] 187	165	103	104	190	96	[8] 161	78
Pacific	162	88	145	110	97	86	80	80	126	57

SMALLPOX CASE RATES

	May 21, 1932	May 23, 1931	May 28, 1932	May 30, 1931	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931	June 18, 1932	June 20, 1931
98 cities	7	16	[2] 5	15	[3] 5	14	[4] 3	10	[5] 3	7
New England	0	0	0	0	0	0	0	0	0	5
Middle Atlantic	0	4	0	1	0	0	0	1	0	0
East North Central	3	15	0	11	2	16	[6] 1	12	1	5
West North Central	23	67	23	88	28	42	19	35	9	29
South Atlantic	0	6	2	24	0	18	0	0	0	14
East South Central	35	41	[3] 37	6	[3] 31	18	[3] 6	23	[3] 12	12
West South Central	20	47	0	37	7	41	3	24	0	20
Mountain	61	9	[7] 0	26	0	26	0	17	[8] 0	0
Pacific	17	12	21	12	17	33	11	25	17	16

TYPHOID FEVER CASE RATES

	May 21, 1932	May 23, 1931	May 28, 1932	May 30, 1931	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931	June 18, 1932	June 20, 1931
98 cities	8	6	[2] 8	7	[3] 7	6	[4] 7	7	[5] 10	9
New England	10	2	0	2	5	2	7	0	5	10
Middle Atlantic	5	5	4	8	3	5	4	7	7	12
East North Central	4	5	8	2	5	1	[6] 1	4	4	4
West North Central	9	10	2	4	2	10	6	4	6	6
South Atlantic	25	12	18	22	16	20	27	14	29	14
East South Central	6	18	[3] 31	12	[3] 31	18	[3] 12	18	[3] 37	12
West South Central	10	7	3	7	10	10	10	24	16	14
Mountain	9	0	[7] 9	17	9	17	0	9	[8] 0	0
Pacific	10	8	19	2	17	4	15	12	15	10

See footnotes at end of table.

Summary of weekly reports from cities, May 15 to June 18, 1932—Annual rates per 100,000 population, compared with rates for the corresponding period of 1931—Continued

INFLUENZA DEATH RATES

	Week ended—									
	May 21, 1932	May 23, 1931	May 28, 1932	May 30, 1931	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931	June 18, 1932	June 20, 1931
91 cities	7	7	[2] 5	7	[3] 5	6	[4] 4	4	[5] 5	7
New England	0	5	0	10	5	2	0	0	5	7
Middle Atlantic	7	5	4	3	3	5	7	4	5	8
East North Central	5	5	6	5	3	2	[6] 0	4	4	5
West North Central	20	3	3	9	6	6	3	6	6	6
South Atlantic	6	4	14	18	14	14	12	6	8	4
East South Central	6	19	[3] 14	19	[3] 14	38	[3] 7	13	[3] 0	0
West South Central	24	28	3	14	10	10	0	3	13	14
Mountain	0	26	[7] 0	17	0	0	0	0	[8] 0	9
Pacific	0	0	5	5	2	7	2	5	2	5

PNEUMONIA DEATH RATES

	May 21, 1932	May 23, 1931	May 28, 1932	May 30, 1931	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931	June 18, 1932	June 20, 1931
91 cities	98	95	[2] 86	101	[3] 77	86	[4] 73	75	[5] 62	70
New England	125	72	101	111	91	120	89	60	79	65
Middle Atlantic	109	121	97	109	83	102	92	88	75	72
East North Central	86	68	66	75	60	59	[6] 46	60	42	60
West North Central	105	97	105	133	67	138	70	71	52	106
South Atlantic	102	111	116	133	98	77	96	83	76	89
East South Central	75	121	[3] 61	185	[3] 95	76	[3] 27	146	[3] 7	83
West South Central	77	97	71	128	84	86	94	79	81	76
Mountain	131	70	[7] 107	70	129	87	52	70	[8] 45	78
Pacific	46	55	51	43	53	48	44	43	53	34

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1932 and 1931, respectively.

[2] Covington, Ky , and Reno, Nev., not included.

[3] Covington, Ky., not included.

[4] Springfield, Ill., and Covington, Ky., not included.

[5] Covington, Ky., and Boise, Idaho, not included.

[6] Springfield, Ill., not included.

[7] Reno, Nev., not included.

[8] Boise, Idaho, not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Two weeks ended June 11, 1932.—Cases of certain communicable diseases reported for the two weeks ended June 11, 1932, by the Department of Pensions and National Health of Canada are given in the table below. Provinces not given in the table did not report any case of any disease included in the table.

Disease	Nova Scotia	Quebec	Ontario	Saskatchewan	Alberta	Total
Cerebrospinal fever		1	2			3
Influenza	4					4
Lethargic encephalitis			2			2
Poliomyelitis		3	1			4
Smallpox				1		1
Typhoid fever		258	17		3	278

Quebec Province—Communicable diseases—Week ended June 11, 1932.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended June 11, 1932, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	1	Ophthalmia neonatorum	1
Chicken pox	68	Poliomyelitis	2
Diphtheria	16	Scarlet fever	79
Erysipelas	8	Tuberculosis	42
German measles	1	Typhoid fever	92
Measles	45	Whooping cough	47

HAWAII TERRITORY

Influenza—Honolulu.—Under date of June 28, 1932, an epidemic of influenza was reported in Honolulu, Territory of Hawaii. About June 15, there was a sudden increase in the number of cases of influenza. Investigation by the Territorial board of health resulted in an estimate of from 9,000 to 10,000 cases in a week.

The disease is of a mild form, but there has been a slight rise in the mortality from pneumonia.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place		Dec. 13, 1931–Jan. 9, 1932	Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Week ended— March, 1932			April, 1932					May, 1932				June, 1932		
					12	19	26	2	9	16	23	30	7	14	21	28	4	11	18
China:																			
Canton	C				1			1			1				1	1	2	49	330
	D														1		1	22	152
Hankow	C	2	1	1							3			8					
	D	1									1			3					
Shanghai	C												11	11	8	40	92	90	
	D													1	1	1	10	9	
Tientsin	C																		3
Swatow	C	1													1				49
	D																		3
India	C	14,889	10,001	5,826	1,210	1,164	1,148	1,430	1,519	1,432	1,709								
	D	7,684	5,267	2,788	587	547	564	660	780	719	863								
Bombay	C	1		1															
	D	1		1															
Calcutta	C	58	133	118	32	47	31	52	53	114	53	130	174	228	141	106		63	
	D	25	70	54	15	21	9	28	25	56	25	42	58	125	79	59	38	27	
Chittagong	C		6	1		1		1											
	D		1	2				1											
Madras	C			3		6													
	D			3		2	1												
Rangoon	C	1													1				
	D	1													1				
India (French):																			
Chandernagor	C	3											11		3	5			
	D	3											5		2	5			
Karikal	C		35	2															
	D		17																
Pondicherry Territory	C		15				1	1											
	D		15				1	1											
Pondicherry	C							1											
	D							1											
India (Portuguese)	C	1																	
	D	1																	

Indo-China (see also table below):																			
Pnompenh	C		2						1						1		1		
	D		2						1						1		1		
Saigon and Cholon	C	2	1	1				1			1	1	1	1	2	2	2	2	
	D										1	1	1	1	2	2	1	1	
Iraq: Amara	C	2																	
	D	2																	
Japan:																			
Kobe	C																	1	
Tokyo	C																	1	
Persia:																			
Khorramabad	C	3																	
	D	10																	
Kouh Bezman	C											1[1]							
Philippine Islands:[2] Capiz Province	C	26	22	23															
	D	19	20	20															
Siam:																			
Ayudhaya Province	C		1			1			1	1					8				
	D		1			1		1		1					7				
Bangkok	C		1		1	1			1										
	D		1			1													
On vessel:																			
S. S. Angora at Rangoon from Calcutta	C							1											
S. S. Narbada at Rangoon from Calcutta	C								1										
	D								1										
S. S. Shanghai Maru at Kobe from Shanghai	C																1		

Place		November, 1931	December, 1931	January, 1932	February, 1932			March, 1932			April, 1932			May, 1932		
					1-10	11-20	21-29	1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20	21-31
Indo-China (French) (see also table above):																
Annam [3]	C				4									93	20	21
	D				4									7	2	6
Cambodia [3]	C	4	3	12	3	2		6	1	3	4	1	20	12	6	
	D		2	6	2	2		3	1	1	3		8	2	1	
Cochin-China [3]	C	6	14	5	7		P	3	2	4	3	6	18	11	30	
	D	4	7	4	5			2	1	2	2	3	13	8	21	
Laos [3]	C										7					
	D										3					

[1] A suspected case.
[2] Figures for cholera in the Phillipine Islands are subject to correction.
[3] Reports incomplete.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE[1]

[C indicates cases; D, deaths; P, present]

Place		Dec. 13, 1931–Jan. 9, 1932	Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Week ended— March, 1932: 12	19	26	April, 1932: 2	9	16	23	30	May, 1932: 7	14	21	28	June, 1932: 4	11	18
Argentina: Cordoba Province[2]	C	1	1							2									
Belgian Congo	C	1														2			
British East Africa (see also table below).																			
Tanganyika	C		10			2													
	D		10																
Uganda	C	63	31	8			3	1	1	7	13	18	11	9					
	D	62	26	6			3	1	1	6	11	18	7	8					
Canary Islands: Palma Island—Los Lanos	C		8											1					
	D		8																
Ceylon: Colombo	C	4	5	4	1	1		1		1		1	1	3		2	5	3	
	D	4	3	3	1	1		1		1		1	1	1		2	5	3	
Plague-infected rats		1	1									1	5	2	2		4		
China:																			
Kwang Chow Wan	C					8													
	D					8													
Shensi Province	C			P															
Dutch East Indies:																			
Java—																			
Surabaya	C		2																
	D		2																
Tegal	C			1															
Java and Madura	D	587	499	459	98	79	89	96	98	75	95	97	70	62					
West Java	C	203	201	141	54	40	51	68	68	52	64	55							
	D	203	200	139	55	40	51	67	68	52	63	54							
Ecuador (see table below).																			
Egypt:																			
Alexandria	C		2	2									1	2	1	8	1	2	
	D													2		1	2	1	1
Assiout	C	2	1																
	D	2	1																
Beheira	C		11									1	2				1	1	
	D		2									1	3				1		
Beni Suef	C										4	33	2						
	D											8	3						
Gharbieh	C																2		1
	D																	1	
Girga	C	1																	
	D	1																	

Kena	C	2																	
	D	2																	
Minieh	C	7	1				3												
	D	7	1				2	1											
Port Said	C	1																	
	D	1																	
Tanta	C		1																
	D		1																
Hawaii Territory:																			
Hawaii Island—																			
Hamakua—																			
Honokaa	C			2															
	D			2															
Plague-infected rats				1															
Kukaiau—Plague-infected rats																1	1		
Maui Island—																			
Makawao	C			1															
	D			1															
Plague-infected rats				4															
India	C	6,998	7,892	8,593	2,824	2,768	1,779	2,353	1,804	1,400	1,279								
	D	2,912	3,971	4,970	1,567	1,545	952	1,479	1,065	852	859								
Bassein	C		1	4	1	3	3	2	4			1	2					2	
	D			4	1	2	1	3	3		1		2					2	
Bombay	C			5	1	1	2	4	6	3	5	5	2	2	1		1		
	D			5		1	1	4	5	3	5	2	1	2	1		1		
Plague-infected rats		42	57	109	31	26	17	43	30	23	35	34	25	21	1	11	3		
Madras	C										1[3]								
	D										1								
Madras Presidency	C	169	2,951	70	37	64	27	30	42	16	11		18						
	D	59	155	47	17	25	18	26	14	6	4		4						
Rangoon	C	1		9	2		1	1	4	1	.1	1				1			
	D	1	1	8	1	1	1	1	4	1		1							
Plague-infected rats		1		2	3	1	1	3	4			1		2		1		1	
Indo-China (see table below).																			
Iraq: Baghdad	C	2	5	3															
	D			1															
Madagascar (see also table below). Tamatave	C	1																	
Peru (see table below)																			
Senegal (see table below).																			
Siam	C	1	1	1	4	1	1	1											
	D	1	1		2			1											
Southwest Africa.[4]																			
Syria: Beirut	C								1			1							1
Union of South Africa: Orange Free State	C	P	P	P				P											
	D					10													
United States: California—Los Angeles—Plague-infected rats									1				2					1	

[1] Including plague in the United States and its possessions.
[2] 10 cases of bubonic plague were reported in Cordoba Province, Argentina, in January, 1932. They were distant from railroad and 500 kilometers from ports.
[3] An imported case.
[4] 50 cases of plague with 15 deaths were reported in Ovamboland, Southwest Africa, up to Apr. 30, 1932. Antiplague measures have been taken.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place		November, 1931	December, 1931	January, 1932	February, 1932	March, 1932	April, 1932	May, 1932
British East Africa (see also table above): Kenya	C	44	41	17	33	22	18	9
Ecuador:								
Province—								
Chimborazo	C	8		8	13			
Loja	C	2		11				
Indo-China	C		9	17	P	P	9	2
	D		5	9			6	1
Madagascar (see also table above):								
Province—								
Ambatolampy	C			23	40	25		
	D			23	38	25		
Ambositra	C	39	142	166	90	81		
	D	37	121	152	81	67		
Antisirabe	C	27	56	53	45	54		
	D	27	51	51	45	53		
Maevatanana	C	4				4		
	D	4				4		
Miarinarivo	C	10	14	15	13	9		
	D	9	14	15	12	9		
Moramanga	C	25	30	13	9	3		
	D	25	29	13	9	3		
Tananarive	C	186	248	203	148	91		
	D	178	241	196	140	70		
Peru	C	27	21	11	2			
	D	11	9	8	2			
Department—								
Cajamarca	C	14						
	D	5						
Canete	C			3				
Peru—Continued.								
Libertad	C	2		1			28	
Otuzco	C							1
Lima	C	9		6		1		
	D	4						
Lima	C	1			1	1		
	D	1			1			
Piura	C			1				
Senegal:								
Baol [5]	C	2						
Dakar [5]	C					10		
	D					5		
Diourbel [5]	C	10						
	D	5						
Louga [5]	C	19						3
	D	10						2
Rufisque [5]	C	12						2
	D	2						2
Thies [5]	C	16	1					
	D	7	1					
Yombel [5]	C					9		
	D					5		

[5] Reports incomplete.

SMALLPOX

[C indicates cases, D, deaths; P, present]

Place		Dec. 13, 1931–Jan. 9, 1932	Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Week ended— March, 1932: 12	19	26	April, 1932: 2	9	16	23	30	May, 1932: 7	14	21	28	June, 1932: 4	11
Aden	C		2			1												
Algeria																		
Algiers	C	1																
Constantine Department	C									1		1	1		1			
Philippeville	C											1						
Southern Territories	C			2														
Brazil																		
Porto Alegre (alastrim)	C	35	34	19		3	1	1	2	1	2							
	D	2					1											
Rio de Janeiro	C	1																
Santos	C		2															
British East Africa: Tanganyika	C	55	24	5				P					79	11				
	D	4	7	2														
British South Africa																		
Northern Rhodesia	C	7	5															
Southern Rhodesia	C	1						4	1	6								
Canada:																		
Alberta	C	11																
British Columbia [1]	C	2	18	25	7		2	1										
Manitoba	C		10							1								
Nova Scotia	C			1														
Ontario	C	14	6	21	1			3		2	4		1			23		
North Bay	C		1															
Quebec	C	3	1	8														
Saskatchewan	C	11	35	30	5			1		1	5	2	3	1	3	6		
Chile: Tocopilla	C	2																
China																		
Amoy	C	218	183	121	15	12	8	10	7	5	4	1	3		2	3		
	D	79	91	44	5	7	3	10	4	3	3	1	2		2	2		
Canton	C	18	27	44	21	18	29	11	24	18	22	17	19	9	5	9	1	3
	D			1	7						1		1					
Foochow	C	P	P	P		P		P		P		P		P		P		

[1] 23 cases of smallpox with 8 deaths were reported at Vancouver, British Columbia, from Jan. 1 to Feb. 18, 1932.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths, P, present]

Place		Dec. 13, 1931–Jan 9, 1932	Jan. 10–Feb. 6, 1932	Feb. 7–Mar 5, 1932	Week ended— March, 1932 12	19	26	April, 1932 2	9	16	23	30	May, 1932 7	14	21	28	June, 1932 4	11
China—Continued.																		
Hankow	C	47	59	4			3	2	1		1	1	1	1	3			
	D	12	5	1														
Hong Kong	C	1	11	51	12	7	17	9	12	13	21	9	7	9	7	1	4	5
	D		6	23	7	6	7	8	2	6	6	6	7	6	2	2	4	6
Manchuria—Dairen	C		1	1	3	1	7	5	7		1							
Shanghai	C	155	163	167	30	29	13	30	22	24	22	22	16	6	5	6	3	3
	D	41	62	67	15	17	6	7	7	10	8	10	6	5		2	1	2
Swatow	C	2		1														
Tientsin	C		1	2	1	6	1		1	1			1				2	
	D			1		1												
Chosen (see table below).																		
Colombia. Cali	C	1																
Dahomey	C						3	3				2	2					
	D							1										
Dutch East Indies Batavia	C	1	1															
	D		1															
Egypt																		
Alexandria	C							1						1	1			1
Cairo	C		1															
Suez	C			2	3	5	7	5	1	1	2		1					
	D					1	1	1										
France (see table below)																		
Germany Aix-la-Chapelle	C		1															
Gold Coast (see table below).																		
Great Britain:																		
England and Wales	C	198	227	258	76	61	41	95	70	87	96	62	68	76	56	68	49	
London	C	100	100	136	28	23	23	55	30	25	48	34	41	39	25	29		
London and Great Towns	C	152	188	203	57	56	37	86	57	63	86	51	59	60	47	52	37	
Guatemala (see table below).																		
Honduras: [2]																		
Ceiba	D			1		1	1		1									
Puerto Castilla	C		1	4								4			1			
Tegucigalpa	C			5														
Tela	C							2	2							1		

Trujillo	C			35														
	D			5														
India	C	2,361	4,576	9,709	3,006	2,339	2,818	3,877	4,093	3,431	3,083							
	D	464	970	1,896	580	405	518	731	783	705	665							
Bassein	C		3						1									
	D								1									
Bombay	C	3	6	23	8	8	4	7	7	7	8	3	10	12	2	12	7	4
	D	2	2	10	4	3	1	4	2	3	5		2	4	1	5	4	2
Calcutta	C	7	27	102	22	44	50	43	38	19	40	36	17	35	22	19	15	16
	D	3	15	54	14	30	36	35	30	11	22	36	12	29	16	10	17	14
Chittagong	C					2								2				
	D					1								1				
Cochin	C		1	9	2		1		1									
Karachi	C	3	18	23	4	3	3	9	6	4	10	9	4	5	3	4	7	5
	D		6	8	1	1	3	3	2		2	5		2	1	3	1	1
Madras	C	7	9	15	15	9	15	12	15	20	13	10	17	10	10	10	3	8
	D	2	3	4	6	4	1	5	4	2	2	3	2	4	2	3		3
Moulmein	C		4	4	4	2	1		1									
Negapatam	C			1			1								1	2		
	D		1												1			
Rangoon	C	39	147	418	172	128	163	143	116	71	32	41	18	26	13	9	6	10
	D	10	40	127	61	37	70	31	32	28	12	16	9	11	6	2	4	4
Tuticorin	C	6	28	36	9	4		1		3		2	4					
	D		2	8	4	4		1		1		2	5					
Vizagapatam	C	2		3			2											
India (French)																		
Karikal	C	4	1	4	3	2	8	6	3	15	1	2	2	4	1	4		
	D	2	1	4		1	2	6	3	6	1	2	2	2	1	2		
Pondicherry Territory	C	22	32	20	11	10	1	7	3	10	6	3	3	5	28	11		4
	D	22	27	20	7	10	4	5	2	8	6	3	3	5	28	11		4
Indo-China (see also table below)																		
Pnompenh	C		1	2			1											
Saigon and Cholon	C	32	117	145	54	45	71	42	33	35	32	13	12	8	8	5	3	3
	D	24	92	85	48	35	60	31	30	32	27	12	11	7	7	5	3	3
Iraq																		
Baghdad	C	15	10	4	1	1	12	6		5	10	12	4	7	10		14	9
	D	8	13	4	1		5	4		2	5	6	2	3	3		6	4
Basra	C	1	2	2			4	7	1	1	1	1	1	1			2	4
	D	2								1	2	1		1			1	
Ivory Coast (see table below).																		
Japan:																		
Kobe	C			1	1		1			1				1	7	2		
	D				1											1		
Nagasaki	C												1	4	4	4	1	
Osaka Prefecture [3]	C										3	90	34	48				
Osaka	C													1				
Taiwan	C		35	58		1					1							
Yokohama	C	1	2															

[2] 590 cases of smallpox with 15 deaths were reported in Honduras from July, 1931, to Feb 16, 1932.
[3] 200 cases of smallpox were reported in Osaka Prefecture, Japan, from Mar. 1 to May 24, 1932.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Dec. 13, 1931–Jan. 9, 1932	Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Week ended— March, 1932			April, 1932					May, 1932				June, 1932	
					12	19	26	2	9	16	23	30	7	14	21	28	4	11
Mexico (see also table below).																		
Chihuahua	D			3				1	1						1			5
Durango	D								1									
Jalisco (State)—Guadalajara	D	1	3		1						1	1		1			1	1
Mexico City and surrounding territory	C	8	14	33	6				2	5	6	3	3	2	3	9		
	D			1							1	1		1				
Monterrey	C		1	8	1					1	1							
Saltillo	D														1	2	2	
San Luis Potosi	D	2	5	2	2	1				1	1		1			1		1
Torreon	C	2	6	2		1	1		1			2		1	1	1	1	1
	D	2	2	3		1	1		1			2		3			1	
Morocco (see table below).																		
Nigeria	C		217	46		270	1	480			82	34						
	D		120	2		24	1	86			6	13						
Palestine	C													1				
Poland	C	1												1				
Portugal.																		
Lisbon	C	108	98	50	10	14	8	6	5	11	4	6	10	5	8	6	2	
Oporto	C	2	3	14	4	4	4	2	10	6		5	3	5	8	8	4	9
Salvador	C			85	10													
Siam	C	13	1		2											1		1
Sierra Leone.[4]																		
Straights Settlements	C	2	4	6	1													
	D		1		2													
Sudan (Anglo-Egyptian)	C	2	3	8	1		3			1		2						
	D		1	1														
Sweden. Malmo	C		9															
Syria (see table below).																		
Tunisia: Tunis	C	1			1													
Turkey (see also table below) Istanbul	C			1						1				1				
Union of South Africa.																		
Cape Province	C	P							P	P	P	P	P	P				
Orange Free State	C									P	P	P						
Transvaal	C					P	P					P	P					
On vessels:																		
Brazilian ship Jaboatoa at New Orleans from Brazil	C	1																

Place																		
S. S. Tacoma at Manila from Shanghai	C	1																
S. S. Cressington Court at Yokohama from Shanghai	C		1															
S. S. Bollington Court at Yokohama from Shanghai	C		1															
S. S. Victoria City at Brisbane from Shanghai	C		1															
S. S. Bellasco at Mobile from Habana, Cuba, and Hull, England	C	1																
S. S. Frauenfels at Suez from Calcutta	C				1													
S. S. Uwajima Maru at Osaka from Shanghai	C		1															
S. S. President Jackson at Yokohama from San Francisco via Honolulu	C	1																
S. S. Hong Kheng at Singapore from Amoy, via Swatow and Hong Kong	C		1															
S. S. Hai Ning and S. S. Solviken at Hong Kong	C		P															
S. S. Merkara at Aden from Colombo	C		2															
S. S. Tjisadane at Hong Kong from Shanghai and Amoy	C		P															
S. S. Poafung at Shanghai	C		1															
S. S. Rajula at Penang from Negapatam	C		P															
S. S. MacGillivary at Suez from Rangoon	C				[5] 1													
S. S. Tainui at Southampton from New Zealand	C						[5] 1											
S. S. Glenbank at Suez from Aden	C							1										
S. S. Tuscania at Suez from Bombay	C														1			

Place		November, 1931	December, 1931	January, 1932	February, 1932 1-10	February 11-20	February 21-29	March, 1932 1-10	March 11-20	March 21-31	April, 1932 1-10	April 11-20	April 21-30	May, 1932 1-10	May 11-20
Gold Coast	C			2											
	D			1											
Indo-China (see also table above)	C	120	509	309	145	206	309	230	275	222	175	247	146	211	78
	D	22	93	148	47	98	86	109	113	120	80	97	64	46	37
Ivory Coast	C	1													
	D	1													
Syria: Beirut	C			5							1		1		

Place		October, 1931	November, 1931	December, 1931	January, 1932	February, 1932	March, 1932	April, 1932
Chosen	C	7	2	1	1	6	30	
	D	1				3	9	
France	C		6	1				
Greece	C						1	8
Guatemala	C				5			
	D				1			
Mexico (see also table above)	D	427	419	423				
Morocco	C	91	152	279	488	368	308	101
Turkey (see also table above)	C				31	22	2	
	D				1	1		

[4] From Mar. 6 to Apr. 30, 1932, 551 cases of smallpox with 6 deaths, were reported in Sierra Leone.

[5] A suspected case.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER

[C indicates cases, D, deaths, P, present]

Place		Nov. 15–Dec 12, 1931	Dec. 13, 1931–Jan. 9, 1932	Jan 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Week ended— March, 1932 12	19	26	April, 1932 2	9	16	23	30	May, 1932 7	14	21	28	June, 1932 4	11
Algeria:																			
Algiers	C		4	1	3			7			8	9	23	7	23	31		8	
Constantine Department	C	3	5	7			7											1	
Geryville	C			7	1														
Oran	C	1				1											4	10	
Bulgaria	C	4	22	44	66	12	10	12		15	6	15	9	10	7	16	5		
	D		3	6	6	1	1				3	4	2		2	1			
Chile:																			
Antofagasta	C		1	1												1			
Santiago	C	3					1				1								
China																			
Hankow	C		4				1	3	1						1				
Swatow	C				2														
Chosen (see table below).																			
Colombia. Cali	D				1														
Czechoslovakia (see table below).																			
Egypt:																			
Alexandria	C		5		1					5	2	7					1		
Beheira	C		7		70				46				5						
	D				16								1						
Cairo	C	1																	
Gharbieh	C		1		12								5						
	D												2						
Provinces	C		11	43	333	148	164	164	200	112	49	41	20	27	38	38	60		
	D		2	3	25	15	17	17		18	9	12	4	6	1	1			
Greece (see table below).																			
Irish Free State:																			
Donegal County—Stranorlar	C	2																	
Limerick County—Limerick	C	1																	
Roscommon County—																			
Leitrim	C															1			
	D															1			
Roscommon	C																	1	
Waterford County—Lismore	C		1																
Latvia (see table below).																			
Lithuania (see table below).																			

Mexico:																			
Guadalajara	D		1																
Mexico City, including municipalities in Federal District	C	22	11	25	20	2	3	2		3	2	3	3	2		5	1		
	D	4	6	9	12	2		2		1		2					2		
San Luis Potosi	D		1		1		1												
Morocco	C	17	9	6	59	3	21		5	9	7	3	15	3	7	7	2	13	
	D	2	1		6	2	4			1									
Palestine	C	1	4	3	1									1				2	1
Paraguay. Asuncion	D				1														
Poland	C	106	193	265	215	74	65	52	64	85	95	119	115	70	106	106	98	83	
	D	10	14	10	21	5	5	4	8	5	10	11	13	7	4	5	9	3	
Portugal.																			
Lisbon	C																	2	5
Oporto	C			1	1					10				3				4	
Rumania	C	68	105	264	296	82	79	56	53	89	62	55	46	61					
	D	6	10	13	28	12	8	6	5	8	6	5	2	8					
Tunisia: Tunis	C	26	2	1	24	14	26	10	31	32	6	20	19	26	15	13			
	D	2			3	2		3	3	4									
Turkey (see table below).																			
Union of South Africa																			
Cape Province	C	P	P	P	P		P	P	P	P	P	P	P	P	P				
Natal	C	P	P		P							P	P	P					
Orange Free State	C	P	P	P	P	P		P	P	P	P	P	P	P	P				
Transvaal	C	P	P	P	P														
Venezuela Caracas (see table below)																			
Yugoslavia (see table below)																			
On vessel. At Antofagasta, from Iquique and points north	C		1																

Place		November, 1931	December, 1931	January, 1932	February, 1932	March, 1932	April, 1932
Chosen Seoul	C	4			5	4	
	D	1			1		
Czechoslovakia	C		10	1			1
	D		3				
Greece	C	4	6	4	4	7	1
	D		1				
Latvia	C		12				
Lithuania	C	9	20	21	10	32	25
	D		1	3	3	3	5
Turkey	C	14	21	14	22	6	1
	D		2	3	1	3	
Venezuela Caracas	D		1	2			
Yugoslavia	C	2	14	11	26	5	29
	D	1	1		2	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

YELLOW FEVER

[C indicates cases; D, deaths; P, present]

Place		Nov. 15–Dec. 12, 1931	Dec. 13, 1931–Jan. 9, 1932	Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Week ended— March, 1932 12	March, 1932 19	March, 1932 26	April, 1932 2	April, 1932 9	April, 1932 16	April, 1932 23	April, 1932 30	May, 1932 7	May, 1932 14	May, 1932 21	May, 1932 28
Brazil:																	
Bahia State	C		2														
Esplanada	C													P			
Ceara State	C												1				
	D												1				
Espirito Santo State[1]	C						2			1	P	P	P				
	D						2			1							
Santa Teresa (about 56 miles from Victoria)	D				1												
Dahomey: Porto Novo	C								1								
	D								1								
Gold Coast:																	
Avudua	C								1	1							
Cape Coast	C					P											
Dagomba District	C	1															
Salaga	C	1															
	D	1															
Tamale	C	3															1
Yapei	C						1										
Nigeria	C	2			1												
	D	2															
Togo (French): Atakpame—Anie Circle	D	1															

[1] During the 3 weeks ended Apr. 30, 1932, a number of cases of suspected yellow fever were reported in the interior of the State.

X

UNITED STATES TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

ISSUED WEEKLY

BY THE UNITED STATES PUBLIC HEALTH SERVICE

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SPECIAL ARTICLES

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

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CONTENTS

PUBLIC HEALTH REPORTS

VOL. 47 JULY 15, 1932 NO. 29

SICKNESS AMONG MALE INDUSTRIAL EMPLOYEES DURING THE FIRST QUARTER OF 1932

By Dean K. Brundage, *Statistician, Office of Industrial Hygiene and Sanitation, United States Public Health Service*

The widespread prevalence of sickness reported as influenza during the first quarter of 1932 caused a smaller number of disabilities lasting eight calendar days or longer than was anticipated from the reports of cases without reference to their duration or severity received from various States and cities in the United States. Apparently, many cases did not cause disability for a period as long as eight days. The fatality rate evidently was extremely low, the Metropolitan Life Insurance Co. reporting a decrease of 41 per cent in the death rate from influenza during the first three months of 1932 as compared with that for the like months of 1931; and a decrease of 26 per cent in the mortality from pneumonia.[1] These decreases occurred in spite of the fact that the outbreak of influenza in January and February, 1931, although widespread, was not severe, and therefore affords no abnormal basis of comparison with health conditions in 1932.

That the type of influenza which prevailed was mild is attested further by the low incidence rate of disability from pneumonia (all forms). The expectancy for pneumonia is about 3 cases annually per 1,000 male industrial workers. During the first three months of 1932, reports of sickness from industrial groups showed that cases of pneumonia were occurring at the rate of only 2.6 cases annually per 1,000 men. In the first three months of the year the frequency of pneumonia usually attains its seasonal maximum, so that the indicated rate of 2.6 is extremely low for such a period. This rate was 37 per cent below the incidence recorded for the same three months one year ago, 45 per cent below the rate two years ago, and was only one-half the frequency indicated for pneumonia during the first quarter of 1929. Deaths from pneumonia in the industrial population show a similar, although less abrupt, declining tendency. Commenting on mortality in the first four months of 1932, the Metropolitan Life

[1] Statistical Bulletin, Metropolitan Life Insurance Co., Vol. XIII, No. 4, April, 1932, p. 2.

Insurance Co. states that the low death rate for pneumonia "has never before been even closely approached during the like period of any year." [2]

Relatively low also in the first quarter of 1932 were the morbidity rates for the numerically important diseases of the upper respiratory tract, such as bronchitis (acute and chronic), and diseases of the pharynx and tonsils, including tonsillitis. For these as a group the frequency was lower than in the corresponding months of any of the three preceding years. New cases of tuberculosis of the respiratory system appear to have occurred at comparatively low frequency.

TABLE 1.—*Frequency of disability lasting eight calendar days or longer in the first quarter of 1932 compared with the same quarter of 1931, 1930, and 1929. (Male morbidity experience of 27 industrial establishments which reported their cases to the United States Public Health Service during all four years)* [1]

Diseases and disease groups which caused disability (numbers in parentheses are disease title numbers from the International List of the Causes of Death, Fourth Revision, Paris, 1929)	Annual number of disabilities per 1,000 men in first quarter of—			
	1932	1931	1930	1929
Sickness and nonindustrial injuries [2]	118.8	135.5	117.0	175.5
Nonindustrial injuries	10.7	10.6	11.4	11.9
Sickness [2]	108.1	124.9	105.6	163.6
Respiratory diseases	58.7	75.2	50.4	105.2
Influenza and grippe (11)	37.4	50.7	22.9	77.4
Bronchitis, acute and chronic (106)	6.2	6.1	7.0	7.1
Pneumonia, all forms (107–109)	2.6	4.1	4.7	5.1
Diseases of the pharynx and tonsils (115a)	5.8	7.1	8.6	8.3
Tuberculosis of the respiratory system (23)	1.0	1.3	1.1	1.2
Other respiratory diseases (104, 105, 110–114)	5.7	5.9	6.1	6.1
Nonrespiratory diseases	49.4	49.7	55.2	58.4
Diseases of the stomach, cancer excepted (117, 118)	4.3	3.8	4.8	4.7
Diarrhea and enteritis (120)	1.1	.7	1.2	.9
Appendicitis (121)	3.3	3.7	4.3	4.7
Hernia (122a)	1.8	1.9	1.9	1.8
Other digestive diseases (115b, 116, 122b–129)	3.0	2.9	3.3	3.5
Rheumatic group, total	13.5	12.4	13.0	13.4
Rheumatism, acute and chronic (56–58)	6.3	6.3	6.6	6.2
Diseases of the organs of locomotion (156b)	4.7	3.7	3.8	4.4
Neuralgia, neuritis, and sciatica (87a)	2.5	2.4	2.6	2.8
Neurasthenia and the like (part of 87b)	1.3	1.4	1.4	1.3
Other diseases of the nervous system (78–85, part of 87b)	.9	1.2	1.4	1.3
Diseases of the heart and arteries, and nephritis (90–99, 102, 130–132)	3.6	4.2	4.7	4.3
Other genito-urinary diseases (133–138)	2.0	2.6	2.2	2.4
Diseases of the skin (151–153)	2.3	2.7	3.6	4.4
Epidemic and endemic diseases except influenza (1–10, 12–18, 33, 37, 38, part of 39 and 44)	3.0	3.1	3.6	5.4
Ill-defined and unknown causes (200)	2.2	1.7	2.3	2.0
All other diseases (19–22, 24–32, 36, part of 39 and 44, 40–43, 45–55, 59–77, 88, 89, 100, 101, 103, 154–156a, 157, 162)	7.1	7.4	7.5	8.3
Average number of males covered in the record	145,747	158,891	161,642	159,152
Number of companies included	27	27	26	23

[1] Except that the rates for 1930 and 1929 cover 26 and 23 companies, respectively, instead of 27 in 1931 and 1932. The rates for the corresponding period of preceding years differ somewhat from those shown in earlier publications, because data for additional groups have become available in the meantime.
[2] Exclusive of disability from the venereal diseases.

For nonrespiratory diseases as a whole the rate was virtually the same as in the like months of 1931. The frequency of minor digestive illnesses (diseases of the stomach, and diarrhea and enteritis) exhibits no trend one way or the other, but for appendicitis a dwindling rate

[2] Loc. cit., Vol. XIII, No. 5, May, 1932, p. 10.

is in evidence. The hernia rate is virtually the same for the first quarter of each of the four years under review. Neurasthenia appeared to be increasing somewhat during the last nine months of 1931, but in the first quarter of 1932 the rate was the same as in the corresponding period of 1929. A marked decrease occurred in the incidence of diseases of the skin, thus continuing the favorable trend for this group of diseases noted in the statistics for 1931.[3]

Sickness as a whole shows a remarkably favorable rate. If one deducts influenza, the first quarter of 1932 displays the lowest sickness incidence rate of the four periods under review in Table 1.

These results are based on reports of cases of illness causing absence from work for more than one week among the male members of 27 industrial sick-benefit organizations which reported to the Public Health Service continuously during 1931 and 1932, and of 26 and 23 organizations, respectively, in 1930 and 1929. Identical companies reported in 1931 and 1932, and in 1929 and 1930 the group was almost the same. The records covered about 146,000 men in the first quarter of 1932, and about 160,000 in the same months of each of the three preceding years.

The establishments included in the table are scattered all over the United States with a preponderance of reporting units located north of the Ohio and Potomac Rivers and east of the Mississippi. The record applies to the employed population only, so that it does not adequately mirror the effect of the economic depression upon health. However, a large number of the men included are employed on curtailed working schedules with concomitant reduction of individual and family incomes and the standard of living.

OBSERVATIONS ON THE AGGLUTINATION OF PROTEUS X ORGANISMS IN ROCKY MOUNTAIN SPOTTED FEVER

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Studies on the agglutination of *proteus* X organisms in Rocky Mountain spotted fever have been reported by Kelly (1923), Kerlee and Spencer (1929), and Spencer and Maxcy (1930). Similar experimental studies have been presented by Kuczynski (1927), Otto (1928), and Munter (1928). These results were reviewed briefly by Spencer and Maxcy and more recently by Felix and Rhodes (1931).

This report presents the results of tests of human sera, extending over a period of four years, and also includes some additional observations.

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[1] Contribution from the Rocky Mountain Spotted Fever Laboratory, Hamilton, Mont.

[3] *Cf.* Sickness among male industrial employees during the last three months of 1931, and a summary of sickness frequency by years since 1920. Pub. Health Rep., vol. 47, No. 18, Apr. 29, 1932, p. 999.

CULTURES AND METHODS

Spencer and Maxcy have emphasized the "broader affinities" of the agglutinins produced in Rocky Mountain spotted fever as compared with those in typhus. In our later studies we have used as many as 10 cultures of *proteus* X organisms including O and H forms, and four other cultures which had been isolated by Doctor Anigstein from rats infected with the virus of tropical typhus and which were received through the courtesy of Surg. R. R. Spencer. Our results with the latter group have been essentially negative and need not be reported in detail.

The original Kingsbury and Warsaw strains were received directly from Doctor Fletcher, of the Federated Malay States. Later we used both OXK and HXK obtained from Doctor Felix, of the Lister Institute. Cultures OX_2 and HX_2 (Weil) were received from Doctor Moltke, who had in turn received them from Doctor Sierakowski, of Warsaw. Cultures $X_{19}H$ and X_{19} (Kral) were also received from Doctor Moltke. The following strains were received from the National Institute of Health: X_{19} Breinl (N. I. H. No. 560), OX_{19} Felix (N. I. H. No. 568), "Weil's proteus" (N. I. H. No. 271), and the Warsaw strain (N. I. H. No. 533). The Warsaw strain received from Doctor Fletcher grew more and more sparsely, eventually showing only pin-point colonies, and finally no further growth could be obtained. It was replaced by Warsaw (N. I. H. No. 533), which also came from the original culture received from Doctor Fletcher. Culture No. 271 is the organism used by Kelly and by Kerlee and Spencer in the study of Rocky Mountain spotted fever and has been used extensively in the Southern States in the diagnosis of endemic typhus.

During the past year all cultures have been checked repeatedly for O and H characteristics by the following methods: (1) The "water of condensation" of an agar slant was inoculated and the tubes were incubated in an upright position. (2) One drop from a dilute saline suspension was placed on the surface of an agar plate dried for 24 hours at 37° C., spread with a sterile bent glass rod, and incubated in an inverted position for 24 hours. Types OX_2 and OXK have shown no tendency to spread. Type X_{19} has always resulted in definite colonies with a slight marginal spreading. Weil and Felix (1917) have designated this form as a type intermediate between a pure O and an H. Moltke (1927) also noted this type of colony in certain of his cultures and states that such cultures produce a pure O serum. No. 568, which was reported as an O strain, has at times shown definite colonial formation, but is also a vigorous

spreader. All other cultures cover the agar slant and likewise the agar plate.

The technique has been altered from time to time and will be indicated as such changes were made. Throughout all tests, however, the titer of a serum is recorded as the highest serum dilution showing 50 per cent agglutination or more.

Table 1 gives the results of tests made in 1928 and 1929 on 21 sera using four strains of *proteus* X. OXK was the strain received from Doctor Fletcher. The Warsaw (W) strain was the one indicated as growing in pin-point colonies and finally showing no growth whatever.

Some of these sera had been heated at 55° C. and preserved with equal parts of glycerin. The organisms were washed from 24-hour agar slants with physiologic saline and standardized to 500 p. p. m. silica standard (Standard Methods of Water Analysis, 1925). No preservative was used. Equal parts (0.5 c c) of the suspensions and serial dilutions of sera were mixed and incubated in the water bath at 38° C. for 12 to 20 hours, followed by refrigeration from 5 to 7 hours. The periods of incubation and refrigeration were purely experimental and are not given in detail, since no advantage over the periods commonly used was shown.

TABLE 1.—*Agglutination of proteus X strains by sera from cases of Rocky Mountain spotted fever (series 1928 and 1929)*

Serum designation	Days after onset	Agglutinin titer with *proteus* X strains				Serum designation	Days after onset	Agglutinin titer with *proteus* X strains			
		OXK	W	271	560			OXK	271	568	560
G. L.	3	20	80	20	------	R. A.	14	20	1,280	------	1,280
S.	5	40	40	160	80	R. N.	16	80	2,560	2,560	2,560
F. K.	7	20	80	80	40	J. B.	7	160	------	40	40
B. A.	8	40	160	160	------	J. B.	16	160	2,560	2,560	2,560
K.	9	40	20	40	40	S. Mc.	21	40	20	40	40
S.	10	40	40	40	40	S. W.	22	1,280	320	80	160
J. C. Y.	11	0	80	------	80	J. D. L.	25	40	640	1,280	640
D. A.	11	40	1,280	640	640	J. M.	30	20	640	640	320
M. G.	12	80	40	80	40	C. B.	33	80	640	320	320
J. Q. A.	12	40	40	40	40	E. L. L.	35	40	5,120	2,560	1,280
H. R. A.	14	640	640	320	2,560						

The maximum titers (Table 1) were obtained from the eleventh through the thirty-fifth day following onset. However two sera, designated as M. G. and S. Mc., taken on the twelfth and twenty-first days, respectively, show nothing of diagnostic importance. It is worthy of note that four sera, viz, J. B. (2 samples), H. R. A. and S. W., agglutinated OXK in serum dilutions of 160, 640, and 1,280, respectively. In the case of J. B., the only one from which two samples were secured, there was no rise in titer for OXK agglutinins, while there was a marked rise in agglutinins for at least two other strains.

Table 2 gives the results of agglutination tests, made in 1930, on 22 sera. With a few exceptions these sera were preserved with equal parts of glycerin. The suspensions were standardized as in the former series. No preservative was used. The incubation period was two hours at 37° C., followed by 48 hours in the electric refrigerator. The highest titers were obtained from the eleventh to the nineteenth day following onset.

TABLE 2.—*Agglutination of proteus X strains by sera from cases of Rocky Mountain spotted fever (series 1930)*

Serum No.	Days after onset	Agglutinin titer with *proteus* X strains				Serum No.	Days after onset	Agglutinin titer with *proteus* X strains			
		OXK	271	568	560			OXK	271	568	560
161	2	80	20	40	------	105	10	80	0	0	------
103	4	40	10	20	------	135	10	0	0	0	------
147	5	60	10	40	------	114	11	40	40	40	------
144	5	160	320	320	------	119	11	40	320	640	------
133	5	40	40	20	------	132	13	80	640	640	------
104	5	40	0	0	------	141	14	80	10	0	------
128	7	40	20	10	------	101	15	80	640	640	------
109	7	80	20	20	------	116	19	------	640	------	640
106	9	40	40	40	------	98	21	80	20	40	------
115	9	80	10	0	------	125	21	160	320	320	------
99	10	80	0	10	------	145	21	40	40	80	------

Table 3 gives similar results on 14 sera obtained in 1931. These sera were tested unheated and without glycerin. Eighteen- to 24-hour cultures were standardized as formerly just before use without any preservative. Incubation was at 37° C. for two hours followed by 40 to 48 hours at 5°–6° C.

TABLE 3.—*The agglutination of proteus X organisms by sera from cases of Rocky Mountain spotted fever (series 1931)*

Serum No.	Days after onset	Agglutinin titer for *proteus* X organisms									
		OXK	HXK	OX_2	HX_2	OX_{19}	HX_{19}	W	271	560	568
193	2	160	160	80	0	0	0	80	0	80	0
186	5	20	20	0	0	0	0	20	0	0	0
190	6	0	40	20	80	0	20	0	40	40	0
191	9	40	40	0	40	0	0	20	0	0	0
185	10	------	------	640	------	------	------	------	160	------	------
198	10	80	40	160	160	40	20	40	20	0	40
205	10	0	20	640	320	80	80	0	20	160	1,280
227	10	80	40	160	40	160	160	40	0	80	320
182	12	40	------	40	0	320	160	1,280	640	------	80
204	13	0	0	1,280	1,280	320	320	1,280	0	640	320
196	14	40	40	0	20	0	0	0	0	20	0
178	17	20	------	160	0	20	0	160	0	------	40
187	20	20	20	1,280	2,560	80	80	80	0	80	80
209	21	80	80	10,240	5,120	1,280	1,280	2,560	20	1,280	1,280

Three sera (Nos. 198, 196, and 178), all taken within the period when agglutinins are often highest, failed to agglutinate any strain in a serum dilution higher than 1:160. Four sera (Nos. 185, 204, 187, and 209) contained agglutinins for X_2 in concentrations as high as, or

higher than, for any other organism. No. 209 is especially noteworthy in this respect. However, this serum gave no protection when equal parts of serum (0.5 c c) and *passage* virus, mixed and allowed to remain at room temperature for 30 minutes, were injected into a guinea pig intraperitoneally. Neither did it exhibit any protective properties against graded doses of virus of endemic typhus.

Table 4 is a record of agglutination tests made in 1931 on sera from nine individuals from whom two or more sera were procured.

TABLE 4.—*The agglutination of proteus X organisms by sera taken from nine individuals at different periods*

Sera	Days after onset	Agglutinin titer for *proteus* X organisms									
		OXK	HXK	OX_2	HX_2	OX_{19}	HX_{19}	W	271	560	568
G. B.	8	40	------	0	------	80	------	0	0	------	0
	20	40	------	1,280	160	80	40	160	40	40	80
	79	40	------	0	0	0	40	40	0	0	40
R. C.	9	80	------	160	------	------	------	------	320	160	------
	5 mo.	40	40	40	40	80	20	20	160	160	80
M. K.	8	20	------	40	------	------	------	0	0	0	------
	16	40	------	20	------	------	------	------	40	20	------
	27	20	------	20	------	0	------	------	------	20	------
O. B.	9	0	------	0	------	------	------	------	0	0	------
	24	80	40	80	20	160	160	160	320	320	320
A. B.	13	40	80	2,560	2,560	40	80	320	80	640	160
	88	80	80	80	40	80	80	80	160	160	160
W. S.	11	40	20	20	0	0	0	0	80	0	0
	18	160	320	80	20	320	20	320	640	640	640
	30	80	80	20	0	640	1,280	320	80	160	160
E. W.	14	80	------	320	------	------	------	------	1,280	1,280	------
	4 mo.	40	20	20	20	40	0	20	160	80	80
B. L.	3	80	------	------	------	------	------	------	40	------	20
	13	160	------	------	------	------	------	------	1,280	------	1,280
R.	12	------	------	------	160	------	------	------	80	80	------
	20	------	------	------	320	------	------	------	320	------	640

Three sera in Table 4 are of special interest, two for their high agglutinin content for *proteus* X_2 and one for the absence of agglutinins.

The serum of G. B. contained agglutinins only of the OX_2 type in a serum dilution which might be considered of diagnostic importance. These agglutinins were entirely absent on the eighth day after onset and had completely disappeared in approximately two and a half months.

The serum of A. B. also contained agglutinins for *proteus* X_2 in a far greater concentration than for any other strain used. These had fallen to a negligible level in three months.

The number of cultures used in testing the serum of M. K. was limited by the amount of serum available. At no time did the agglutinin titer rise above that of normal serum in spite of the fact that sera were procured at optimum periods as determined in other tests. Moreover, serum taken 27 days after onset protected guinea pigs against multiple lethal doses of *passage* virus.

Two other sera are worthy of mention. A mild strain of virus was recovered in the guinea pig from the blood of O. B. taken on the ninth

day of the disease at a time when agglutinins were entirely absent. Blood taken on the twenty-fourth day gave a considerable degree of protection, but the agglutinin titer did not rise above 1:320.

The serum of W. S., taken on the eighteenth day, showed a marked rise in titer when compared with the 11-day serum. On the thirtieth day there was a decided drop in agglutinins for three test suspensions, while agglutinins for HX_{19} had increased. The patient was still hospitalized at this time.

We have obtained sera from 26 individuals (Table 5) recovered from spotted fever at intervals varying from one month to 33 years. Sera obtained one (No. 195) and three (No. 223) months after onset contained O agglutinins above normal level. All other sera were essentially negative. This is not in accord with the findings of Felix (1930) in epidemic typhus. Felix states: "O agglutinins for X_{19} due to a previous typhus infection may be present in dilutions of the serum generally accepted as diagnostic even many years after an attack of typhus fever."

TABLE 5.—*The agglutination of proteus X organisms by sera from individuals recovered from Rocky Mountain spotted fever*

Serum No.	Period after onset	Agglutinin titer for *proteus* X organisms									
		OXK	HXK	OX_2	HX_2	OX_{19}	HX_{19}	W	271	560	568
195	1 month	40	40	640	160	160	640	640	0	640	160
171	2½ months	0	------	0	0	0	40	40	0	0	40
176	2½ months	0	0	0	0	0	0	20	0	40	0
223	3 months	80	40	320	80	0	40	160	80	160	160
166	2 years	20	------	40	20	20	20	40	40	40	40
180	2 years	0	0	80	20	20	0	40	0	------	20
207	2 years	80	80	20	20	20	0	80	40	40	0
172	3 years	40	40	80	40	40	20	80	160	160	40
169	4 years	20	20	80	20	0	0	20	20	40	20
164	5 years	80	0	40	0	20	0	80	80	40	40
170	5 years	20	40	40	0	0	0	40	80	20	40
212	6 years	20	0	20	0	0	0	20	0	0	0
210	7 years	0	20	0	0	0	0	0	0	20	0
206	9 years	40	0	20	0	0	20	0	0	0	0
183	10 years	0	0	0	0	0	0	20	80	0	0
220	11 years	80	------	20	0	0	80	40	80	80	40
167	14 years	40	------	0	0	------	------	------	0	0	------
203	15 years	40	40	20	0	0	20	0	0	40	0
242	15 years	40	------	20	------	80	------	------	40	------	80
174	17 years	20	20	80	320	0	0	80	20	0	0
181	17 years	80	40	20	0	40	40	80	20	40	80
235	17 years	20	20	0	0	40	20	20	80	40	40
219	18 years	20	80	80	40	40	0	0	320	80	0
165	22 years	0	------	80	0	0	------	40	------	40	------
168	30 years	20	------	40	0	20	0	40	40	40	80
175	33 years	20	40	20	0	0	0	0	0	40	0

Table 6 is a record of the results of agglutination tests on sera from six fatal cases. Although it is unusual to find agglutinins within such short periods after onset, Spencer and Maxcy have reported a titer of 2,560 in a single case as early as the fifth day of illness, and we have recorded several instances in which the agglutinin titer, within this period, might be considered of diagnostic importance. Serum No.

151 B was obtained on the eleventh day about two hours post-mortem. In no serum were we able to detect an agglutinin content above normal.

TABLE 6.—*Agglutination of proteus X strains by sera from six fatal cases of Rocky Mountain spotted fever*

Serum	Days after onset	Agglutinin titer for *proteus* X organisms										
		OXK	HXK	OX_2	HX_2	OX_{19}	HX_{19}	W	271	560	568	
189	4	20	20	0	0	40	0	40	0	80	0	Died 4th day.
221	4	40	------	20	0	0	40	40	80	80	40	Died 5th day.
155	5	40	------	------	------	------	------	----	20	----	40	Died 12th day.
151-A	6	------	------	------	------	------	------	----	80	20	----	Died 11th day.
151-B	2 hours post-mortem.	------	------	------	------	------	------	----	80	20	----	
192	7	40	40	40	0	0	20	20	0	160	0	Died 9th day.
208	7	40	40	20	20	0	0	40	0	0	40	Died 7th day.

HEAT LIABILITY OF AGGLUTININS

The heat resistance of agglutinins for *proteus* X organisms has formed the subject of a number of papers. Havens (1927) has found that these agglutinins in the sera of individuals ill with or convalescent from endemic typhus are unaffected when heated at 56° C. for one hour, but are completely destroyed when heated at 62° C. for the same length of time. Felix and Olitzki (1929) have reported that heating the sera (diluted 1: 50) of European typhus patients at 55° C. for 40 minutes reduces the agglutinin content by 40 to 60 per cent, and that heating at 65° C. completely destroys them.

Table 7 gives the agglutinin titer of 12 Rocky Mountain spotted fever sera before heating and after heating at 55° C. for 30 minutes. We chose this time and temperature, not to determine the actual point of destruction of agglutinins, but rather as a practical test, inasmuch as many sera are thus heated in certain routine serological procedures.

Our results were not constant. A similar finding has been reported by Moltke (loc. cit., p. 163). In fact, he found that some OX_2 sera were unaffected by heating at 65° C. Some of our sera, e. g., 171, 187, and 188, showed no reduction in titer, while others, e. g., 209 and 217, resulted in a fall of 50 per cent or more.

In one instance (No. 209) this procedure raised the agglutinin titer for HX_2 practically to the same level as that for OX_2 (heated serum). However, heating serum No. 187 not only raised the titer for HX_2 fourfold but also to twice the titer for OX_2, while the titer for OX_2 remained unchanged. The agglutinin content (X_{19}—271 and 568) of some low titer sera, e. g., Nos. 197, 205, and 219, was reduced to a negligible level. It appears that *heating at 55° C. for 30 minutes effects marked differences in individual sera.* It is possible that these differences may be explained by the globulin content of the sera as suggested by Felix and Olitzki.

TABLE 7.—*Heat liability of X agglutinins. The sera indicated below were heated at 55° C. for 30 minutes and tested with such X strains as had given positive results in relatively high dilutions of the unheated sera*

Serum No.	OX_2		HX_2		OX_{19}		HX_{19}		271		560		568		W	
	H	U	H	U	H	U	H	U	H	U	H	U	H	U	H	U
171	640 2,560	640 2,560	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---
182	---	---	---	---	---	---	---	---	80 320	160 640	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---
185	80 640	320 640	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---
187	1,280 5,120	1,280 5,120	2,560 10,240	640 2,560	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---
188	160 640	160 320	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---
197	---	---	---	---	---	---	---	---	--- 40	80 320	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---
204	160 640	320 1,280	--- ---	160 640	80 320	80 320	80 320	80 320	--- ---	--- ---	160 320	160 640	--- ---	--- ---	160 320	160 1,280
205	80 320	160 640	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- 40	320 1,280	--- ---	--- ---
209	1,280 10,240	2,560 10,240	1,280 5,120	640 5,120	80 640	320 1,280	80 640	320 1,280	--- ---	--- ---	160 1,280	320 1,280	80 320	320 1,280	320 640	640 2,560
216	80 320	160 320	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	320 1,280	640 1,280	640 5,120	640 1,280	--- ---	--- ---	--- ---	--- ---
217	320 1,280	1,280 2,560	160 640	160 2,560	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---
219	---	---	---	---	---	---	---	---	--- 20	160 320	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---

H = Heated; U = unheated sera.
The upper figure indicates 100 per cent agglutination. The lower figure expresses the highest serum dilution in which there was definite agglutination.

DISCUSSION

Varying results in the agglutination of *proteus* X organisms by sera from individuals ill with or convalescent from typhus or typhuslike diseases have been attributed by Felix, in part, to the failure to follow a definite technique. Much of the discussion has centered about (1) methods of cultivation of the test organisms, (2) the use of killed or living organisms in the agglutination tests, (3) the preservation of sera with glycerin, and (4) the failure to distinguish between O and H types of agglutinins.

Medium.—In cultivating the organisms, Felix has stipulated that "the agar medium should be prepared from fresh meat bouillon, not from meat extracts." We have used dehydrated nutrient agar (Difco) in all our reported studies. The temporary or permanent changes which an organism may undergo as the result of slight variations in environment is indicative of the necessity of a standard procedure for comparative purposes. It is possible that the type of cultivation used by us *may* exert an adverse influence on the agglutinibility of *proteus* X organisms. If this is true it appears that X_2 is much more stable in this respect than X_{19}. In a few instances we have made duplicate tests with organisms carried on fresh meat bouillon agar and on dehydrated medium and have not found the results in favor of the former method. We feel that, as a very prac-

tical point, an extended comparison of these methods might well be made before discarding the dehydrated medium.

Killed or living cultures.—It will be noted that, in order to make our results absolutely comparable on this point, and especially to avoid any question concerning the use of formalin, we have used only fresh suspensions of organisms in all tests. However, there is not complete agreement on the effects of formalin. Felix has found that formalin inhibits the O type of agglutination. Spencer and Maxcy report, "In our experience, however, formalinized suspensions can be used with equal facility and accuracy provided the concentration of the preservative be kept at a minimum." Felix and Craigie are in agreement that the inhibition phenomenon is not brought about by the action of formalin directly on the somatic antigen. Felix adds that "neither can it be explained by the direct action of the disinfectant on the toxophore group of the O agglutinin," and, further, that the presence of H antigen is necessary to bring about the phenomenon. Craigie, however, finds that "unsensitized formalinized flagella impede the agglutination of the sensitized somata to which they are attached"; also, that "when the flagella are detached by violent agitation of the suspension, normal somatic agglutination takes place." If, therefore, formalin affects neither the O antigen nor the O agglutinin it appears that a formalinized suspension would have the same practical advantage as an alcoholized suspension, especially when dealing with pure O strains such as OX_2, which, in our experience, has never shown any H characteristics.

Glycerin.—We have tested OX_2 using (*a*) serial dilutions of glycerin (C. P. redistilled) in saline, (*b*) sera that have agglutinated OX_2 in relatively high dilutions with and without equal parts of glycerin, and (*c*) normal sera with and without glycerin, and have been unable to detect any nonspecific agglutination attributable to the glycerin. Moreover, it will be noted that in the agglutination tests for 1931 no glycerin was used, yet several of the highest titers were obtained with OX_2.

O and H agglutinins.—The significance of the O type of agglutinin is well established for European typhus. In our Rocky Mountain spotted fever studies HX_{19} strains are sometimes agglutinated by a higher serum dilution than the OX_{19} strain which we used. However, there are such wide differences in the agglutination of the several X_{19} strains that, not possessing O and H types of each strain, we have been unable definitely to evaluate the results in Rocky Mountain spotted fever. Moreover, Craigie has shown that flagella are especially sensitive to agglutination, and consequently may give an exaggerated idea of the titer of the serum.

As a rule, OX_2 was agglutinated in higher serum dilutions than HX_2, but there were exceptions.

The high titers obtained with OX_2 are of outstanding interest. Felix and Rhodes have shown that the O antigen of X_2 and X_{19} have little in common. We have amply confirmed this observation. Of 6 anti-*proteus* rabbit sera which have agglutinated X_{19} strains in a serum dilution as high as 1:40,000, only one has agglutinated OX_2 in a serum dilution as low as 1:100.

It will be remembered that X_2 was originally replaced by X_{19}, as a diagnostic culture in European typhus, because the latter was agglutinated by much higher serum dilutions. Several of our Rocky Mountain spotted fever sera, however, have agglutinated OX_2 *only*, or have agglutinated this strain in higher serum dilutions than X_{19} strains.

CONCLUSIONS

1. Although the agglutination of *proteus* X organisms occurs in a considerable proportion of cases of Rocky Mountain spotted fever, the number of strains necessary to secure agglutination in sufficiently high titers to be of possible diagnostic significance and the irregularity with which such results are obtained indicate that with the available strains the agglutination test can not be considered a diagnostic procedure in a measure comparable to agglutination tests in certain other diseases, e. g., tularæmia.
2. The relatively high titers obtained with OX_2 are to be noted.
3. In order that the agglutination test should be most significant, at least two serum samples should be secured, one between the tenth and fifteenth days and another a week or 10 days later. A third sample taken during convalescence is also desirable.
4. Our results indicate that agglutinins for *proteus* X organisms in Rocky Mountain spotted fever disappear more quickly than in typhus fever.
5. Heating at 55° C. for 30 minutes effects marked differences in individual sera.
6. The agglutination and protection tests made with sera 209 (Table 3) and M. K. (Table 4), the first showing a high agglutinin titer and low protective value, the latter a low agglutinin titer and high protective value, suggest that there is no necessary correlation between the agglutinin titer and the protective properties of convalescent sera.

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DEATHS DURING WEEK ENDED JUNE 25, 1932

Summary of information received by telegraph from industrial insurance companies for the week ended June 25, 1932, and corresponding week of 1931. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)

	Week ended June 25, 1932	Corresponding week, 1931
Policies in force	72, 457, 832	75, 148, 752
Number of death claims	12, 405	13, 184
Death claims per 1,000 policies in force, annual rate	9. 0	9. 1
Death claims per 1,000 policies, first 25 weeks of year, annual rate	10. 2	10. 6

Deaths [1] from all causes in certain large cities of the United States during the week ended June 25, 1932, infant mortality, annual death rate, and comparison with corresponding week of 1931. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)

[The rates published in this summary are based upon mid-year population estimates derived from the 1930 census]

City	Week ended June 25, 1932				Corresponding week, 1931		Death rate [2] for the first 25 weeks	
	Total deaths	Death rate [2]	Deaths under 1 year	Infant mortality rate [3]	Death rate [2]	Deaths under 1 year	1932	1931
Total (85 cities)	7, 105	10. 1	591	[4] 48	11. 2	638	12. 0	12. 9
Akron	30	5. 9	0	0	8. 1	2	7. 6	8. 2
Albany [5]	35	14. 0	2	41	11. 3	3	14. 6	15. 1
Atlanta [6]	73	13. 5	7	68	12. 2	7	13. 8	15. 6
White	43	12. 0	5	74	8. 8	5	10. 8	12. 4
Colored	30	16. 4	2	57	19. 0	2	19. 7	22. 0

See footnotes at end of table.

Deaths [1] *from all causes in certain large cities of the United States during the week ended June 25, 1932, infant mortality, annual death rate, and comparison with corresponding week of 1931*—Continued

City	Week ended June 25, 1932				Corresponding week, 1931		Death rate [3] for the first 25 weeks	
	Total deaths	Death rate [3]	Deaths under 1 year	Infant mortality rate [4]	Death rate [3]	Deaths under 1 year	1932	1931
Baltimore [5, 6]	162	10.3	15	53	13.8	18	14.1	15.7
White	119	9.3	11	50	13.5	12	13.1	14.4
Colored	43	15.0	4	64	15.3	6	18.5	21.8
Birmingham [6]	69	13.0	11	115	12.0	5	11.8	14.5
White	26	7.9	1	16	8.1	4	9.2	11.2
Colored	43	21.3	10	270	18.3	1	15.9	19.9
Boston	196	13.0	16	48	13.1	17	15.2	15.2
Bridgeport	22	7.8	1	18	11.0	2	11.3	12.1
Buffalo	138	12.3	21	101	12.8	15	13.5	14.2
Cambridge	26	11.9	2	41	15.1	4	13.6	13.4
Camden	21	9.2	1	18	11.8	4	15.5	15.5
Canton	23	11.1	3	75	6.8	5	9.9	11.1
Chicago [5]	622	9.2	41	40	10.3	63	10.5	11.3
Cincinnati	110	12.4	6	39	16.8	4	15.6	16.8
Cleveland	192	10.9	19	62	10.9	12	11.6	12.0
Columbus	52	9.1	1	10	12.5	3	14.1	14.7
Dallas [6]	78	14.4	15	....	12.8	12	10.8	12.1
White	62	13.9	12	....	9.2	7	9.9	10.6
Colored	16	17.2	3	....	29.7	5	15.1	19.1
Dayton	30	7.5	0	0	12.5	1	12.5	13.1
Denver	73	13.0	3	29	13.0	7	15.3	14.8
Des Moines	33	11.8	4	69	19.1	3	11.9	11.8
Detroit	221	6.7	30	54	8.5	22	8.3	9.2
Duluth	17	8.7	1	29	11.3	0	11.2	11.2
El Paso	27	13.2	5	....	18.4	5	14.2	17.0
Erie	22	9.7	4	85	10.2	1	12.0	11.5
Evansville	14	6.9	0	0	14.0	1	10.2	12.0
Fall River [5, 7]	20	9.1	2	53	5.9	1	12.6	12.9
Flint	17	5.2	2	29	3.2	1	8.2	7.7
Fort Wayne	25	10.8	0	0	13.2	2	10.6	11.4
Fort Worth [6]	33	10.1	6	....	10.3	1	10.4	11.7
White	26	9.4	3	....	10.0	1	10.0	11.2
Colored	7	13.7	3	....	11.5	0	12.5	14.0
Grand Rapids	33	9.9	3	51	11.2	0	9.3	9.9
Hartford	30	9.2	3	40	....	....	....	....
Houston [6]	77	12.4	5	....	10.6	11	11.1	11.5
White	50	10.9	2	....	11.3	10	10.3	10.7
Colored	27	16.5	3	....	8.8	1	13.4	13.8
Indianapolis [6]	97	13.5	7	57	13.3	6	13.2	14.4
White	83	13.2	6	55	13.5	4	12.9	13.9
Colored	14	15.9	1	69	11.5	2	15.7	17.7
Jersey City	55	9.0	9	75	11.9	12	11.8	12.7
Kansas City, Kans. [6]	25	10.6	1	22	12.3	2	12.8	14.2
White	22	11.5	0	0	10.0	0	12.4	13.1
Colored	3	6.6	1	128	22.2	2	14.5	18.8
Kansas City, Mo	89	11.2	12	136	12.4	6	12.7	14.2
Knoxville [6]	18	8.4	2	51	7.6	0	12.4	13.5
White	15	8.4	2	56	6.8	0	11.3	12.5
Colored	3	8.6	0	0	11.7	0	17.9	19.1
Long Beach	25	8.1	5	131	9.2	0	9.3	10.3
Los Angeles	249	9.4	23	68	10.8	22	11.0	11.2
Louisville [6]	65	11.0	3	27	11.5	1	13.6	15.5
White	47	9.4	3	31	10.2	1	12.3	13.8
Colored	18	19.7	0	0	18.6	0	20.8	24.7
Lowell [7]	15	7.8	3	78	16.6	5	14.5	13.7
Lynn	23	11.7	1	28	4.6	1	11.3	10.9
Memphis	83	16.5	3	33	15.9	9	16.5	17.0
White	42	13.5	1	17	13.4	6	12.9	14.0
Colored	41	21.3	2	60	20.0	3	22.4	21.9
Miami	24	11.0	3	84	7.9	3	11.9	12.7
White	14	8.3	1	39	5.4	0	10.7	11.6
Colored	10	20.7	2	201	16.5	3	16.1	16.3
Milwaukee	71	6.2	8	38	8.7	19	9.2	10.0
Minneapolis	66	7.2	2	13	10.7	7	10.9	11.7
Nashville [6]	44	14.7	9	134	17.1	3	15.3	17.4
White	28	12.8	6	118	12.0	2	12.9	15.0
Colored	16	19.5	3	187	30.5	1	18.9	23.7
New Bedford [7]	22	10.2	2	58	13.9	2	12.3	13.3
New Haven	30	9.6	1	20	12.5	1	12.9	12.7

See footnotes at end of table.

Deaths [1] from all causes in certain large cities of the United States during the week ended June 25, 1932, infant mortality, annual death rate, and comparison with corresponding week of 1931—Continued

City	Week ended June 25, 1932				Corresponding week, 1931		Death rate [2] for the first 25 weeks	
	Total deaths	Death rate [2]	Deaths under 1 year	Infant mortality rate [3]	Death rate [2]	Deaths under 1 year	1932	1931
New Orleans [6]	165	18.2	20	114	14.1	11	15.6	17.6
White	94	14.6	10	87	12.1	7	13.2	14.3
Colored	71	27.0	10	163	19.0	4	21.5	25.9
New York	1,264	9.2	77	34	10.4	103	11.4	12.3
Bronx Borough	170	6.4	5	14	8.7	13	8.4	9.0
Brooklyn Borough	446	8.7	33	37	9.8	40	10.6	11.4
Manhattan Borough	456	13.4	24	34	15.0	41	17.5	18.8
Queens Borough	148	6.4	12	50	6.1	7	7.4	7.9
Richmond Borough	44	13.7	3	59	11.8	2	14.2	14.2
Newark, N. J	89	10.4	3	16	10.2	9	11.4	12.6
Oakland	45	7.9	3	38	10.2	4	10.8	11.0
Oklahoma City	27	6.9	2	27	11.1	7	10.4	12.0
Omaha	58	13.9	3	34	10.6	4	13.8	14.3
Paterson	33	12.4	5	91	12.4	1	13.3	14.8
Peoria	17	8.0	3	83	13.5	2	11.6	12.9
Philadelphia	394	10.4	33	51	10.7	28	13.4	14.7
Pittsburgh	128	9.8	19	87	12.0	16	13.6	16.2
Portland, Oreg	47	7.9	2	26	9.7	2	11.7	12.2
Providence	53	10.8	6	58	12.9	8	14.3	14.1
Richmond [6]	36	10.2	1	15	11.6	6	14.1	16.7
White	21	8.3	0	0	7.5	2	11.6	14.1
Colored	15	14.9	1	46	21.7	4	20.5	23.2
Rochester	68	10.6	5	48	10.7	5	12.6	12.9
St. Louis	192	12.1	12	43	18.5	27	14.1	16.5
St. Paul	29	5.4	3	32	9.8	4	10.8	11.3
Salt Lake City [5]	29	10.4	2	31	8.8	1	11.1	12.6
San Antonio	58	12.3	12		11.9	13	14.2	16.1
San Diego	46	14.7	5	108	11.7	2	14.8	14.6
San Francisco	149	11.8	7	48	10.8	2	13.0	13.5
Schenectady	17	9.2	0	0	11.4	1	11.0	11.1
Seattle	85	11.8	3	30	8.3	2	12.2	12.1
Somerville	13	6.4	1	40	10.4	0	9.6	10.5
South Bend	17	8.0	1	29	6.8	2	7.9	8.8
Spokane	29	13.0	2	53	11.2	1	12.5	12.8
Springfield, Mass	30	10.2	3	51	8.9	5	11.8	13.0
Syracuse	42	10.2	3	39	12.7	3	12.3	12.4
Tacoma	16	7.7	0	0	12.1	3	12.6	13.0
Tampa [6]	13	6.3	1	29	10.4	4	12.1	12.8
White	10	6.1	0	0	9.4	3	11.5	11.9
Colored	3	6.9	1	158	14.1	1	14.0	16.3
Toledo	76	13.2	3	33	11.1	7	12.3	12.8
Trenton	32	13.5	4	79	14.7	4	16.5	17.9
Utica	32	16.3	2	57	12.7	2	16.5	15.3
Washington, D. C [6]	148	15.7	14	79	13.5	10	17.2	16.9
White	93	13.6	9	74	12.4	7	15.4	14.5
Colored	55	21.0	5	89	16.2	3	22.1	23.2
Waterbury	18	9.3	4	132	7.2	1	9.9	10.3
Wilmington, Del.[7]	27	13.2	1	23	14.2	1	16.0	15.5
Worcester	31	8.2	1	14	9.8	3	13.0	13.7
Yonkers	39	14.3	4	103	8.6	1	8.3	9.5
Youngstown	21	6.3	1	16	7.8	2	10.2	10.9

[1] Deaths of nonresidents are included. Stillbirths are excluded.
[2] These rates represent annual rates per 1,000 population, as estimated for 1932 and 1931 by the arithmetical method.
[3] Deaths under 1 year of age per 1,000 estimated live births. Cities left blank are not in the registration area for births.
[4] Data for 81 cities.
[5] Deaths for week ended Friday.
[6] For the cities for which deaths are shown by color, the percentages of colored population in 1930 were as follows: Atlanta, 33; Baltimore, 18, Birmingham, 38, Dallas, 17, Fort Worth, 16, Houston, 27; Indianapolis, 12; Kansas City, Kans., 19, Knoxville, 16; Louisville, 15; Memphis, 38, Miami, 23, Nashville, 28; New Orleans, 29, Richmond, 29, Tampa, 21; and Washington, D. C., 27.
[7] Population Apr. 1, 1930, decreased 1920 to 1930, no estimate made.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended July 2, 1932, and July 4, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 2, 1932, and July 4, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended July 2, 1932	Week ended July 4, 1931	Week ended July 2, 1932	Week ended July 4, 1931	Week ended July 2, 1932	Week ended July 4, 1931	Week ended July 2, 1932	Week ended July 4, 1931
New England States:								
Maine	1	2			58	25	0	0
New Hampshire	1				11	36	0	0
Vermont		1			116	43	0	0
Massachusetts	45	39	1	1	563	300	3	0
Rhode Island	6	11			12	99	0	0
Connecticut	4	10	2	1	133	131	0	2
Middle Atlantic States:								
New York	57	113	[1] 3	[1] 6	1,434	1,108	4	4
New Jersey	20	33	4	2	409	334	1	6
Pennsylvania	54	52			656	1,018	1	4
East North Central States:								
Ohio	37	15	5	1	818	390	3	2
Indiana	10	6	5	1	29	129	2	4
Illinois [2]	33	80	49	9	293	753	3	9
Michigan	20	35	2	1	1,498	237	4	3
Wisconsin	10	13	11	11	630	499	2	1
West North Central States:								
Minnesota	8	4	1	1	14	58	0	1
Iowa	4	1			3	7	1	0
Missouri	21	13			16	27	0	2
North Dakota		2			47	8	0	1
South Dakota		8		1	3	3	0	0
Nebraska	5	1			4		0	0
Kansas	5	5	1		100	28	1	2
South Atlantic States:								
Delaware	1	1			1	35	0	0
Maryland [2]	6	6	3	1	21	180	0	1
District of Columbia	8	3			6	18	0	0
Virginia [2]	7				88		0	
West Virginia	7	5	4		111	163	1	2
North Carolina [2]	12	7	1		247	203	0	1
South Carolina	2	9	121	86	60	63	0	0
Georgia [2]	5	2	9		5	83	2	2
Florida [2]	2	6			6	12	0	1

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 2, 1932, and July 4, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended July 2, 1932	Week ended July 4, 1931	Week ended July 2, 1932	Week ended July 4, 1931	Week ended July 2, 1932	Week ended July 4, 1931	Week ended July 2, 1932	Week ended July 4, 1931
East South Central States:								
Kentucky	6				32	36	0	0
Tennessee	3	1	5	1		26	0	2
Alabama [3]	10	7	3	2		19	1	3
Mississippi	4	7					0	0
West South Central States:								
Arkansas	6		5		1	7	0	0
Louisiana	10	18	6	20	7		1	1
Oklahoma [4]	7	5	4	17	28	4	1	0
Texas [3]	21	16	19	3	16	26	0	1
Mountain States:								
Montana			3		38	3	0	0
Idaho	2				3		0	1
Wyoming					35	7	0	0
Colorado	8	3			57	169	0	0
New Mexico	3	4			3	10	0	0
Arizona		2		1	2	8	0	0
Utah [3]		2		3	4	10	0	0
Pacific States:								
Washington	4	11			86	46	1	0
Oregon	3	2	5	9	58	13	0	0
California	20	53	3	16	126	269	0	0
Total	499	614	275	194	7,838	6,593	32	56

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended July 2, 1932	Week ended July 4, 1931	Week ended July 2, 1932	Week ended July 4, 1931	Week ended July 2, 1932	Week ended July 4, 1931	Week ended July 2, 1932	Week ended July 4, 1931
New England States:								
Maine	1	2	15	30	0	0	2	4
New Hampshire	0	0	10	2	0	0	0	0
Vermont	0	1	3	2	0	21	0	0
Massachusetts	2	5	210	136	0	0	1	7
Rhode Island	0	0	21	16	0	0	0	0
Connecticut	1	2	34	22	0	0	1	1
Middle Atlantic States:								
New York	4	5	376	252	1	39	6	13
New Jersey	0	0	126	91	0	1	5	0
Pennsylvania	0	1	285	254	0	1	15	19
East North Central States:								
Ohio	1	5	174	134	6	45	17	24
Indiana	1	0	34	47	5	72	7	6
Illinois [3]	4	4	129	131	1	27	20	14
Michigan	0	2	274	240	4	13	11	6
Wisconsin	2	2	23	46	0	19	3	9
West North Central States:								
Minnesota	2	0	23	24	0	3	0	2
Iowa	0	0	12	12	9	36	1	4
Missouri	0	1	17	21	6	6	4	16
North Dakota	5	0	14	6	3	9	3	0
South Dakota	0	0	2	2	3	3	3	4
Nebraska	0	0	11	5	2	7	0	5
Kansas	0	2	9	6	6	20	6	6
South Atlantic States:								
Delaware	0	0	7	9	0	0	0	0
Maryland [3]	0	0	31	23	0	0	10	6
District of Columbia	0	0	5	6	0	0	1	0
Virginia [3]	0		6		0		35	
West Virginia	0	0	11	13	0	3	25	10
North Carolina	3	2	31	14	0	1	42	31
South Carolina	2	0	3	0	0	0	47	66
Georgia [3]	0	1	2	11	0	4	54	28
Florida [3]	0	0	4	3	1	0	5	1

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 2, 1932, and July 4, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended July 2, 1932	Week ended July 4, 1931	Week ended July 2, 1932	Week ended July 4, 1931	Week ended July 2, 1932	Week ended July 4, 1931	Week ended July 2, 1932	Week ended July 4, 1931
East South Central States:								
Kentucky	1	0	9	27	2	8	72	6
Tennessee	0	0	7	1	7	8	91	14
Alabama [2]	0	0	11	10	2	9	20	26
Mississippi	0	0	8	1	1	15	20	15
West South Central States:								
Arkansas	0	1	1	3	1	14	19	22
Louisiana	1	1	5	6	0	25	27	25
Oklahoma [4]	0	0	10	7	0	26	14	27
Texas [2]	4	2	24	14	3	70	25	24
Mountain States:								
Montana	0	0	3	4	1	1	3	2
Idaho	0	0	2	0	0	3	3	0
Wyoming	0	1	5	7	0	2	0	0
Colorado	0	0	7	20	0	11	5	10
New Mexico	0	0	6	2	0	1	5	4
Arizona	0	0	3	1	0	0	2	1
Utah [3]	0	0	0	1	0	4	0	1
Pacific States:								
Washington	4	0	4	12	13	11	4	1
Oregon	0	0	19	7	3	25	2	4
California	4	5	56	45	9	8	8	9
Total	42	45	2,077	1,726	80	571	644	476

[1] New York City only.
[2] Typhus fever, 15 cases: 1 case in Illinois, 1 case in Virginia, 1 case in North Carolina, 6 cases in Georgia, 2 cases in Florida, 3 cases in Alabama, and 1 case in Texas.
[3] Week ended Friday.
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa and for 1931 are exclusive of Tulsa only.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
May, 1932										
Colorado	2	27		1	459		0	100	8	9
Michigan	19	45	42	4	11,650		5	2,010	41	18
Oklahoma [1]	4	31	74	58	84	32	0	39	80	6
Oregon	1	17	127	1	1,035		0	29	33	7
Rhode Island		17		1	303		1	237	0	1
South Carolina		50	2,507	764	649	345	2	15	2	44
South Dakota	2	16	15		35		1	19	2	1
Texas	2	103	122	449			8	87		18
Virginia	9	47	1,320	23	623	65	4	170	1	41
Washington	8	30	171		1,126		3	103	76	23
West Virginia	8	71	118		1,059	1		81	8	28
Wisconsin	8	24	103		9,118		1	296	8	7

[1] Oklahoma City and Tulsa not included.

May, 1932

Chicken pox:	Cases
Colorado	390
Michigan	1,048
Oklahoma [1]	24
Oregon	97
Rhode Island	27
South Carolina	111
South Dakota	29
Virginia	439
Washington	231
West Virginia	72
Wisconsin	1,060
Conjunctivitis:	
Oklahoma [1]	1
Dengue:	
South Carolina	10
Diarrhea:	
South Carolina	1,034
Diarrhea and dysentery:	
Virginia	657
Dysentery:	
Oklahoma [1]	6
Washington	2
German measles:	
Washington	58
Wisconsin	39
Hookworm disease:	
South Carolina	116
Impetigo contagiosa:	
Colorado	2
Oklahoma [1]	1
Oregon	35
Lethargic encephalitis:	
Michigan	2
Oregon	1
Washington	6
Wisconsin	2
Mumps:	
Colorado	432
Michigan	1,398
Oklahoma [1]	19
Oregon	86
Rhode Island	106
South Carolina	154
South Dakota	34
Washington	115
West Virginia	4
Wisconsin	655
Ophthalmia neonatorum:	
Oklahoma [1]	1
South Carolina	10
Paratyphoid fever:	
South Carolina	5
Puerperal septicemia:	
Washington	8

Rabies in animals:	Cases
Rhode Island	1
South Carolina	18
Washington	3
Rocky Mountain spotted or tick fever:	
Colorado	8
Oregon	24
Washington	1
Scabies:	
Oregon	23
Septic sore throat:	
Michigan	31
Oklahoma [1]	9
Oregon	2
Rhode Island	1
Washington	1
Tetanus:	
Oklahoma [1]	2
Washington	1
Trachoma:	
Oklahoma [1]	5
South Dakota	1
Wisconsin	1
Trichiniasis:	
South Dakota	1
Tularaemia:	
South Carolina	2
Virginia	2
Wisconsin	1
Typhus fever:	
South Carolina	1
Virginia	4
Undulant fever:	
Michigan	2
Virginia	4
Washington	2
Wisconsin	3
Vincent's angina:	
Colorado	10
Oklahoma [1]	1
Oregon	11
Washington	4
Whooping cough:	
Colorado	161
Michigan	1,304
Oklahoma [1]	56
Oregon	115
Rhode Island	48
South Carolina	195
South Dakota	32
Virginia	1,391
Washington	123
West Virginia	225
Wisconsin	966

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 93 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 32,225,000. The estimated population of the 86 cities reporting deaths is more than 30,665,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

[1] Exclusive of Oklahoma City and Tulsa.

Weeks ended June 25, 1932, and June 27, 1931

	1932	1931	Estimated expectancy
Cases reported			
Diphtheria:			
46 States	555	677	----------
93 cities	223	324	572
Measles:			
45 States	9,464	9,910	----------
93 cities	3,326	3,597	----------
Meningococcus meningitis:			
46 States	32	75	----------
93 cities	20	37	----------
Poliomyelitis:			
46 States	42	40	----------
Scarlet fever:			
46 States	2,586	2,474	----------
93 cities	1,036	1,058	786
Smallpox			
46 States	201	470	----------
93 cities	13	47	38
Typhoid fever:			
46 States	553	375	----------
93 cities	64	64	52
Deaths reported			
Influenza and pneumonia:			
86 cities	367	413	----------
Smallpox.			
86 cities	0	0	----------

City reports for week ended June 25, 1932

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded, and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1923 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	1	0	0	----------	0	0	2	2
New Hampshire:								
Concord	0	0	0	----------	0	3	0	1
Nashua	0	0	0	----------	0	0	0	0
Vermont:								
Barre	0	0	0	----------	0	0	0	1
Burlington	0	0	0	----------	0	1	2	0
Massachusetts:								
Boston	59	26	8	2	0	186	57	9
Fall River	0	2	0	----------	0	20	0	2
Springfield	12	2	0	----------	0	108	2	4
Worcester	11	2	0	----------	0	31	1	2
Rhode Island:								
Pawtucket	0	0	0	----------	0	0	0	0
Providence	2	4	4	----------	1	2	2	2
Connecticut:								
Bridgeport	2	4	0	----------	0	35	0	1
Hartford	----------	2	----------	----------	----------	----------	----------	----------
New Haven	11	0	0	----------	0	0	10	1

City reports for week ended June 25, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
MIDDLE ATLANTIC								
New York:								
Buffalo	22	8	2	....	0	42	2	10
New York	200	189	73	5	12	544	170	83
Rochester	10	5	0	1	0	4	10	5
Syracuse	6	1	0	....	0	102	4	0
New Jersey:								
Camden	0	6	0	....	0	0	0	0
Newark	48	11	2	2	2	97	106	7
Trenton	1	2	0	....	0	1	0	3
Pennsylvania:								
Philadelphia	62	45	6	4	2	3	47	19
Pittsburgh	26	13	2	....	0	52	10	11
Reading	1	2	0	....	0	5	0	1
Scranton	2	....	0	....	0	2	0	....
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	1	4	1	....	0	0	0	4
Cleveland	47	20	5	....	0	106	26	9
Columbus	2	2	1	1	1	53	0	0
Toledo	14	3	2	....	0	82	1	1
Indiana:								
Fort Wayne	4	1	6	....	1	0	0	2
Indianapolis	5	1	0	....	0	6	22	4
South Bend	1	1	0	....	0	5	0	1
Terre Haute	0	0	0	....	0	12	0	0
Illinois:								
Chicago	75	77	27	1	2	254	6	28
Springfield	3	0	0	1	0	0	10	1
Michigan:								
Detroit	29	35	7	2	1	732	27	15
Flint	4	1	0	....	0	12	6	3
Grand Rapids	11	0	0	....	0	8	9	2
Wisconsin:								
Kenosha	0	0	0	....	0	181	0	0
Madison	6	0	3	....	....	7	1	....
Milwaukee	64	9	3	....	0	256	10	2
Racine	17	1	0	....	0	7	9	1
Superior	8	0	0	....	0	0	0	1
WEST NORTH CENTRAL								
Minnesota:								
Duluth	13	0	1	....	0	0	0	1
Minneapolis	2	8	2	....	0	4	3	4
St. Paul	15	4	0	....	0	6	11	1
Iowa:								
Des Moines	0	0	1	....	....	0	0	....
Sioux City	4	0	0	....	....	0	0	....
Waterloo	3	0	0	....	....	0	1	....
Missouri:								
Kansas City	2	2	2	....	2	14	7	1
St. Joseph	3	0	3	....	0	0	0	5
St. Louis	8	22	17	....	....	5	2	3
North Dakota:								
Fargo	1	0	0	....	0	2	0	0
Grand Forks	0	0	0	....	....	20	0	....
South Dakota:								
Aberdeen	1	0	0	....	....	1	0	....
Nebraska:								
Omaha	5	2	7	....	0	2	1	0
Kansas:								
Topeka	9	1	0	....	1	22	0	2
Wichita	....	0	....	....	....	....	....	....
SOUTH ATLANTIC								
Delaware:								
Wilmington	0	1	1	....	0	0	1	4
Maryland:								
Baltimore	58	13	4	2	1	7	57	13
Cumberland	0	0	0	....	0	7	0	3
Frederick	0	0	0	....	0	0	0	0

City reports for week ended June 25, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
SOUTH ATLANTIC—continued								
District of Columbia:								
Washington	28	7	4	----------	0	14	0	6
Virginia:								
Lynchburg	3	0	0	----------	0	1	0	2
Norfolk	0	0	0	----------	0	1	0	3
Richmond	2	1	0	----------	0	1	0	0
Roanoke	1	0	0	----------	0	1	0	0
West Virginia:								
Charleston	0	0	1	----------	0	3	0	1
Huntington	0	----------	0	----------	0	6	0	0
Wheeling	3	0	0	----------	0	46	0	0
North Carolina:								
Raleigh	0	0	0	----------	0	1	0	0
Wilmington	6	0	0	----------	0	0	0	0
Winston-Salem	0	0	1	----------	0	23	1	0
South Carolina:								
Charleston	0	0	0	2	0	0	0	1
Columbia	5	0	0	----------	0	13	0	0
Georgia:								
Atlanta	5	1	1	4	1	2	0	7
Brunswick	3	0	0	----------	0	0	0	0
Savannah	0	0	0	4	1	31	0	0
Florida:								
Miami	0	1	2	1	0	0	0	1
Tampa	2	1	2	----------	0	0	0	0
EAST SOUTH CENTRAL								
Kentucky:								
Covington	----------	0	----------	----------	----------	----------	----------	----------
Tennessee:								
Memphis	1	0	0	----------	1	----------	0	2
Nashville	0	0	3	----------	0	1	1	2
Alabama:								
Birmingham	7	1	1	----------	0	1	6	3
Mobile	0	0	0	----------	0	0	0	1
Montgomery	0	0	0	----------	----------	0	0	----------
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith	0	0	0	----------	----------	0	0	----------
Little Rock	----------	0	----------	----------	----------	----------	----------	----------
Louisiana:								
New Orleans	0	6	13	2	3	2	0	7
Shreveport	0	0	0	----------	0	5	4	3
Texas:								
Dallas	1	3	4	1	1	7	0	6
Fort Worth	6	1	3	----------	1	1	0	2
Galveston	0	0	0	----------	0	0	0	0
Houston	1	2	4	----------	0	15	0	1
San Antonio	0	2	0	----------	0	0	0	0
MOUNTAIN								
Montana:								
Billings	0	0	0	----------	0	0	0	0
Great Falls	0	0	0	----------	0	2	0	0
Helena	2	1	0	----------	0	0	0	0
Missoula	0	0	0	----------	0	0	0	0
Idaho:								
Boise	0	0	0	----------	0	3	0	0
Colorado:								
Denver	36	5	2	----------	1	58	28	2
Pueblo	11	0	0	----------	0	0	1	2
New Mexico:								
Albuquerque	0	0	0	----------	0	0	2	0
Arizona:								
Phoenix	0	0	0	----------	0	2	0	1
Utah:								
Salt Lake City	50	3	0	----------	0	0	13	3
Nevada:								
Reno	0	0	0	----------	0	0	0	0

City reports for week ended June 25, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
PACIFIC								
Washington:								
Seattle	34	2	0			12	5	
Spokane	14	2	0			22	0	
Tacoma	2	1	1		0	46	0	2
Oregon:								
Portland	1	4	0		0	33	4	2
Salem	0	1	0	3		3	2	0
California:								
Los Angeles		24						
Sacramento	9	1	0	2	1	6	0	2
San Francisco	21	9	2		0	74	8	5

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND											
Maine:											
Portland	1	2	0	0	0	1	0	0	0	7	21
New Hampshire:											
Concord	0	0	0	0	0	1	0	0	0	0	13
Nashua	0	0	0	0	0	0	0	0	0	0	
Vermont:											
Barre	0	0	0	0	0	0	0	0	0	0	4
Burlington	0	0	0	0	0	0	0	0	0	1	6
Massachusetts:											
Boston	48	74	0	0	0	13	1	3	0	42	196
Fall River	3	6	0	0	0	0	0	0	0	2	20
Springfield	4	12	0	0	0	0	0	0	0	6	27
Worcester	7	15	0	0	0	1	0	3	0	17	31
Rhode Island:											
Pawtucket	1	0	0	0	0	0	0	0	0	0	11
Providence	7	12	0	0	0	0	0	1	0	7	53
Connecticut:											
Bridgeport	4	4	0	0	0	1	0	0	0	1	22
Hartford	2		0				0				
New Haven	2	7	0	0	0	3	1	0	0	11	30
MIDDLE ATLANTIC											
New York:											
Buffalo	16	32	1	0	0	7	1	0	0	14	138
New York	144	258	0	1	0	102	11	4	0	117	1,264
Rochester	8	21	0	0	0	6	0	1	0	1	65
Syracuse	5	7	0	0	0	1	0	0	0	43	42
New Jersey:											
Camden	3	8	0	0	0	2	0	0	0	1	21
Newark	15	19	0	0	0	10	0	0	0	8	96
Trenton	3	6	0	0	0	2	0	0	0	1	32
Pennsylvania:											
Philadelphia	59	84	0	0	0	21	1	3	1	41	394
Pittsburgh	24	37	0	0	0	7	0	0	0	24	128
Reading	2	6	0	0	0	0	0	0	0	6	25
Scranton		11		0				0		11	
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	12	7	1	1	0	3	0	0	0	8	110
Cleveland	26	37	1	0	0	16	1	2	0	90	192
Columbus	4	3	1	0	0	2	1	0	0	24	52
Toledo	10	5	1	0	0	3	0	0	1	71	76

City reports for week ended June 25, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
EAST NORTH CENTRAL—continued											
Indiana:											
Fort Wayne	1	1	1	0	0	0	0	2	0	3	27
Indianapolis	8	0	5	0	0	2	0	0	0	26	------
South Bend	2	2	1	0	0	0	0	0	0	0	17
Terre Haute	1	1	0	0	0	2	0	1	0	0	16
Illinois:											
Chicago	89	119	1	0	0	42	2	2	0	77	622
Springfield	2	1	0	0	0	0	0	1	0	1	19
Michigan:											
Detroit	78	160	1	0	0	17	1	0	0	129	221
Flint	10	1	1	0	0	0	0	0	0	18	17
Grand Rapids	7	2	0	0	0	1	0	0	0	18	33
Wisconsin:											
Kenosha	0	2	0	0	0	0	0	0	0	7	6
Madison	2	5	0	0	------	------	0	0	------	10	------
Milwaukee	19	13	0	0	0	6	1	0	0	68	71
Racine	3	0	0	0	0	0	0	0	0	1	11
Superior	2	1	0	0	0	0	0	0	0	2	8
WEST NORTH CENTRAL											
Minnesota:											
Duluth	6	1	0	0	0	1	0	0	0	0	17
Minneapolis	20	8	0	1	0	2	1	0	0	3	66
St. Paul	11	4	1	0	0	1	0	0	0	35	31
Iowa:											
Des Moines	3	1	3	0	------	------	0	0	------	0	38
Sioux City	1	1	1	2	------	------	0	0	------	0	------
Waterloo	0	1	1	0	------	------	0	1	------	0	------
Missouri:											
Kansas City	6	5	0	0	0	9	0	1	0	11	89
St. Joseph	0	0	1	0	0	1	0	0	0	3	38
St. Louis	28	8	2	0	0	9	2	3	0	14	192
North Dakota:											
Fargo	1	1	0	0	0	0	0	0	0	0	7
Grand Forks	0	0	0	0	------	------	0	0	------	0	------
South Dakota:											
Aberdeen	0	0	0	0	------	------	0	0	------	0	------
Nebraska:											
Omaha	2	2	3	0	0	0	0	0	0	1	56
Kansas:											
Topeka	1	1	0	0	0	0	0	1	0	54	30
Wichita	2	------	1	------	------	------	0	------	------	------	------
SOUTH ATLANTIC											
Delaware:											
Wilmington	2	2	0	0	0	0	0	0	0	7	27
Maryland:											
Baltimore	22	18	0	0	0	11	2	1	0	73	162
Cumberland	0	1	0	0	0	0	0	1	0	0	17
Frederick	0	0	0	0	0	0	0	0	0	0	3
District of Col.:											
Washington	12	5	1	0	0	15	1	1	0	13	148
Virginia:											
Lynchburg	0	0	0	0	0	0	1	0	0	20	12
Norfolk	1	0	0	0	0	1	0	0	0	2	20
Richmond	1	2	0	0	0	3	1	2	0	0	35
Roanoke	0	3	0	0	0	2	0	0	0	1	12
West Virginia:											
Charleston	1	4	0	0	0	1	1	2	0	0	23
Huntington	------	0	------	0	0	0	------	0	0	0	------
Wheeling	1	1	0	0	0	0	0	0	0	4	12
North Carolina:											
Raleigh	0	0	0	0	0	1	0	0	0	5	17
Wilmington	0	0	0	0	0	1	0	2	1	9	11
Winston-Salem	1	4	0	0	0	1	0	0	0	9	10
South Carolina:											
Charleston	0	0	0	0	0	1	1	2	0	0	12
Columbia	0	1	0	0	0	1	2	0	0	0	4

City reports for week ended June 25, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
SOUTH ATLANTIC—continued											
Georgia:											
Atlanta	2	4	2	0	0	3	1	4	0	8	73
Brunswick	0	0	0	0	0	0	0	2	0	0	3
Savannah	0	0	0	0	0	2	0	2	1	2	47
Florida:											
Miami	0	0	0	0	0	1	1	1	0	0	24
Tampa	0	1	0	0	0	1	1	0	0	0	16
EAST SOUTH CENTRAL											
Kentucky:											
Covington	0		0				0				
Tennessee:											
Memphis	3	0	1	0	0	8	3	3	0	11	83
Nashville	1	2	1	0	0	2	2	3	0	10	44
Alabama:											
Birmingham	2	1	1	0	0	4	2	1	0	8	69
Mobile	0	0	0	2	0	0	1	0	0	0	21
Montgomery	0	0	0	0			0	0		2	
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	1	0	0			1	0		1	
Little Rock	0		0				0				
Louisiana:											
New Orleans	4	8	0	0	0	11	3	3	2	0	165
Shreveport	1	0	0	0	0	0	0	0	3	1	51
Texas:											
Dallas	2	7	1	0	0	1	1	2	0	20	78
Fort Worth	1	1	1	1	0	1	1	1	0	0	33
Galveston	0	0	0	0	0	0	1	0	0	0	9
Houston	1	0	1	0	0	6	1	0	0	0	77
San Antonio	0	0	0	0	0	7	1	1	0	0	58
MOUNTAIN											
Montana:											
Billings	0	0	0	0	0	0	0	0	0	0	11
Great Falls	0	0	0	0	0	0	0	0	0	0	12
Helena	0	0	0	0	0	0	0	0	0	0	12
Missoula	0	0	0	0	0	0	0	0	0	0	6
Idaho:											
Boise	0	0	0	0	0	0	0	0	0	0	9
Colorado:											
Denver	7	16	0	0	0	6	1	0	0	40	70
Pueblo	0	0	0	0	0	0	0	0	0	1	8
New Mexico:											
Albuquerque	0	0	0	0	0	4	0	0	0	1	9
Arizona:											
Phoenix	1	0	0	0	0	8	0	0	0	0	
Utah:											
Salt Lake City	2	2	0	0	0	0	0	1	0	12	29
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	2
PACIFIC											
Washington:											
Seattle	6	4	1	0			0	2		0	
Spokane	3	1	4	0			0	0		6	
Tacoma	2	3	2	3	0	1	0	0	0	2	18
Oregon:											
Portland	3	0	6	0	0	4	0	0	0	0	47
Salem	0	0	0	0	0	0	0	0	0	8	
California:											
Los Angeles	21		4				2				
Sacramento	2	0	0	0	0	3	0	0	1	5	37
San Francisco	12	3	0	3	0	14	0	0	0	3	149

City reports for week ended June 25, 1932—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	4	1	0	0	0	0	0	0	
MIDDLE ATLANTIC									
New York:									
New York	5	1	2	1	0	0	2	3	1
Rochester	1	0	0	0	0	0	0	0	0
Pennsylvania:									
Philadelphia	0	0	0	0	1	1	0	0	1
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	0	1	0	0	0	0	0	0	0
Columbus	0	0	1	0	0	0	0	0	0
Indiana:									
Indianapolis	2	0	0	0	0	0	0	0	0
Illinois:									
Chicago	1	1	1	0	0	0	0	0	0
Michigan:									
Detroit	3	0	0	0	0	0	1	0	0
WEST NORTH CENTRAL									
Missouri:									
Kansas City	1	1	0	0	1	0	0	0	0
St. Joseph	1	0	0	0	0	0	0	0	0
St. Louis	0	0	0	1	0	0	0	0	0
SOUTH ATLANTIC [1]									
Maryland:									
Baltimore	1	0	0	0	1	0	0	0	0
District of Columbia:									
Washington	0	0	0	0	0	0	0	1	1
West Virginia:									
Charleston	1	1	0	0	0	0	0	0	0
South Carolina:									
Charleston	0	1	2	0	0	0	0	0	0
Georgia:									
Atlanta	0	0	1	1	5	2	0	0	0
Savannah [1]	1	0	0	0	2	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis	0	0	0	0	1	1	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
Shreveport	0	0	0	0	0	1	0	0	0
Texas:									
Dallas	0	0	0	0	0	0	0	1	0
Houston	0	0	0	0	0	0	0	1	0
San Antonio	0	0	0	0	0	1	0	2	1
PACIFIC									
California:									
San Francisco	0	0	0	0	0	0	0	1	0

[1] Typhus fever, 3 cases and 1 death: 2 cases at Savannah, Ga., and 1 case and 1 death at Tampa, Fla.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended June 25, 1932, compared with those for a like period ended June 27, 1931. The population figures used in computing the rates are estimated

mid-year populations for 1931 and 1932, respectively, derived from the 1930 census. The 98 cities reporting cases have an estimated aggregate population of more than 34,000,000. The 91 cities reporting deaths have more than 32,400,000 estimated population.

Summary of weekly reports from cities, May 22 to June 25, 1932—Annual rates per 100,000 population, compared with rates for the corresponding period of 1931 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	May 28, 1932	May 30, 1931	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931	June 18, 1932	June 20, 1931	June 25, 1932	June 27, 1931
98 cities	[2] 48	50	[3] 45	67	[4] 42	54	[5] 47	66	[6] 36	54
New England	55	50	46	46	84	41	62	41	[7] 31	67
Middle Atlantic	43	58	46	74	31	55	50	65	38	47
East North Central	36	81	35	75	[8] 34	64	34	89	30	72
West North Central	66	54	57	55	59	61	64	52	[9] 63	42
South Atlantic	25	42	27	40	27	49	22	44	27	45
East South Central	[8] 6	18	[8] 31	12	[8] 6	18	[8] 6	6	[8] 25	23
West South Central	135	54	59	68	89	27	76	85	[10] 73	68
Mountain	[11] 36	52	26	191	43	35	[12] 27	26	17	9
Pacific	67	37	80	49	59	53	67	71	[13] 11	51

MEASLES CASE RATES

	May 28, 1932	May 30, 1931	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931	June 18, 1932	June 20, 1931	June 25, 1932	June 27, 1931
98 cities	[2] 1,022	1,115	[3] 826	1,096	[4] 855	876	[5] 617	719	[6] 540	568
New England	1,376	935	1,124	933	1,177	601	1,059	635	[7] 1,001	438
Middle Atlantic	557	1,188	413	1,102	525	839	363	664	376	511
East North Central	2,379	1,302	1,952	1,445	[8] 1,868	1,303	1,298	1,159	972	920
West North Central	176	641	172	817	176	448	136	331	[9] 109	297
South Atlantic	490	2,093	333	1,476	512	1,104	392	768	294	591
East South Central	[8] 12	1,057	[8] 187	1,151	[8] 25	828	[8] 37	852	[8] 12	593
West South Central	40	294	49	254	73	149	59	88	[10] 101	47
Mountain	[11] 562	461	957	870	465	705	[12] 572	609	543	479
Pacific	748	492	522	512	611	580	394	302	[13] 613	363

SCARLET FEVER CASE RATES

	May 28, 1932	May 30, 1931	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931	June 18, 1932	June 20, 1931	June 25, 1932	June 27, 1931
98 cities	[2] 397	306	[3] 302	310	[4] 278	269	[5] 253	222	[6] 176	168
New England	645	351	546	414	410	291	417	272	[7] 343	238
Middle Atlantic	566	305	418	355	377	318	321	280	211	195
East North Central	428	437	338	422	[8] 354	386	344	310	208	240
West North Central	174	291	135	258	102	168	44	132	[9] 63	78
South Atlantic	194	239	147	198	120	123	102	77	90	93
East South Central	[8] 56	300	[8] 6	153	[8] 37	170	[8] 6	94	[8] 19	65
West South Central	53	51	43	41	23	88	13	30	[10] 56	30
Mountain	[11] 187	165	103	104	190	96	[12] 161	78	155	96
Pacific	145	110	97	86	80	80	126	57	[13] 42	57

SMALLPOX CASE RATES

	May 28, 1932	May 30, 1931	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931	June 18, 1932	June 20, 1931	June 25, 1932	June 27, 1931
98 cities	[2] 5	15	[3] 5	14	[4] 3	10	[5] 3	7	[6] 2	8
New England	0	0	0	0	0	0	0	5	[7] 0	0
Middle Atlantic	0	1	0	0	0	1	0	0	0	1
East North Central	0	11	2	16	[8] 1	12	1	5	1	5
West North Central	23	88	28	42	19	36	9	29	[9] 6	19
South Atlantic	2	24	0	18	0	0	0	14	0	12
East South Central	[8] 37	6	[8] 31	18	[8] 6	23	[8] 12	12	[8] 12	18
West South Central	0	87	7	41	3	24	0	20	[10] 0	30
Mountain	[11] 0	26	0	26	0	17	[12] 0	0	0	70
Pacific	21	12	17	33	11	25	17	16	[13] 23	6

See footnotes at end of table.

Summary of weekly reports from cities, May 22 to June 25, 1932—Annual rates per 100,000 population, compared with rates for the corresponding period of 1931 [1]—Continued

TYPHOID FEVER CASE RATES

	Week ended—									
	May 28, 1932	May 30, 1931	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931	June 18, 1932	June 20, 1931	June 25, 1932	June 27, 1931
98 cities	[2] 8	7	[3] 7	6	[4] 7	7	[5] 10	9	[6] 10	10
New England	0	2	5	2	7	0	5	10	[7] 18	0
Middle Atlantic	4	8	3	5	4	7	7	12	4	4
East North Central	8	2	5	1	[8] 1	4	4	4	5	6
West North Central	2	4	2	10	6	4	6	6	[9] 12	10
South Atlantic	18	22	16	20	27	14	29	14	37	16
East South Central	[3] 31	12	[3] 31	18	[3] 12	18	[3] 37	12	[3] 44	35
West South Central	3	7	10	10	10	24	16	14	[10] 21	54
Mountain	[11] 9	17	9	17	0	9	[12] 0	0	9	52
Pacific	19	2	17	4	15	12	15	10	[13] 8	14

INFLUENZA DEATH RATES

	May 28, 1932	May 30, 1931	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931	June 18, 1932	June 20, 1931	June 25, 1932	June 27, 1931
91 cities	[2] 5	7	[3] 5	6	[4] 4	4	[5] 5	7	[6] 6	4
New England	0	10	5	2	0	0	5	7	[7] 3	2
Middle Atlantic	4	3	3	5	7	4	5	8	7	2
East North Central	6	5	3	2	[8] 0	4	4	5	3	6
West North Central	3	9	6	6	3	6	6	6	[9] 9	0
South Atlantic	14	18	14	14	12	6	8	4	6	6
East South Central	[3] 14	19	[3] 14	38	[3] 7	13	[3] 0	0	[3] 7	6
West South Central	3	14	10	10	0	3	13	14	[10] 14	7
Mountain	[11] 0	17	0	0	0	0	[12] 0	9	9	0
Pacific	5	5	2	7	2	5	2	5	[13] 6	2

PNEUMONIA DEATH RATES

	May 28, 1932	May 30, 1931	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931	June 18, 1932	June 20, 1931	June 25, 1932	June 27, 1931
91 cities	[2] 86	101	[3] 77	86	[4] 73	75	[5] 62	70	[6] 57	67
New England	101	111	91	120	89	60	79	65	[7] 65	60
Middle Atlantic	97	109	83	102	92	88	75	72	61	76
East North Central	66	75	60	59	[8] 46	60	42	60	43	51
West North Central	105	133	67	138	70	71	52	106	[9] 53	38
South Atlantic	116	133	98	77	96	83	76	89	73	103
East South Central	[3] 61	185	[3] 95	76	[3] 27	146	[3] 7	83	[3] 55	140
West South Central	71	128	84	86	94	79	81	76	[10] 61	90
Mountain	[11] 107	70	129	87	52	70	[12] 45	78	60	35
Pacific	51	43	53	48	44	43	53	34	[13] 54	41

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1932 and 1931, respectively.
[2] Covington, Ky., and Reno, Nev., not included.
[3] Covington, Ky., not included.
[4] Springfield, Ill., and Covington, Ky., not included.
[5] Covington, Ky., and Boise, Idaho, not included.
[6] Hartford, Conn., Wichita, Kans., Covington, Ky., Little Rock, Ark., and Los Angeles, Calif., not included.
[7] Hartford, Conn., not included.
[8] Springfield, Ill., not included.
[9] Wichita, Kans., not included.
[10] Little Rock, Ark., not included.
[11] Reno, Nev., not included.
[12] Boise, Idaho, not included.
[13] Los Angeles, Calif., not included.

FOREIGN AND INSULAR

ARGENTINA

Pneumonic plague—San Luis Province.—Newspapers published in Argentina report an outbreak of pneumonic plague in the province of San Luis, Argentina. Early in June cases of the disease appeared in San Francisco, in the north central part of San Luis Province. By June 15 the disease was said to be decreasing, few new cases being reported.

CANADA

Quebec Province—Communicable diseases—Week ended June 18, 1932.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended June 18, 1932, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	1	Puerperal septicemia	1
Chicken pox	93	Scarlet fever	72
Diphtheria	19	Tuberculosis	91
Erysipelas	7	Typhoid fever	33
German measles	5	Undulant fever	1
Measles	56	Whooping cough	43
Ophthalmia neonatorum	1		

CUBA

Habana—Communicable diseases—Four weeks ended June 18, 1932.—During the four weeks ended June 18, 1932, certain communicable diseases were reported in the city of Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Chicken pox	3		Poliomyelitis	1	
Diphtheria	12	2	Scarlet fever	6	
Malaria [1]	6		Tuberculosis	15	7
Measles	7	1	Typhoid fever [1]	20	6

[1] Many of these cases are from the interior.

CZECHOSLOVAKIA

Communicable diseases—April, 1932.—During the month of April, 1932, certain communicable diseases were reported in Czechoslovakia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	6	1	Puerperal fever	50	20
Cerebrospinal meningitis	12	5	Scarlet fever	1,421	26
Diphtheria	1,527	80	Trachoma	165	
Dysentery	15	2	Typhoid fever	386	35
Malaria	81		Typhus fever	7	
Paratyphoid fever	7				

DENMARK

Communicable diseases—April, 1932.—During the month of April, 1932, cases of certain communicable diseases were reported in Denmark as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	10	Paratyphoid fever	24
Chicken pox	55	Poliomyelitis	3
Diphtheria and croup	158	Puerperal fever	22
Erysipelas	258	Scabies	604
German measles	2	Scarlet fever	171
Gonorrhea	773	Syphilis	75
Influenza	15,449	Typhoid fever	6
Lethargic encephalitis	5	Undulant fever (bac abort. Bang)	54
Measles	2,925	Whooping cough	2,741
Mumps	237		

GREAT BRITAIN

England and Wales—Vital statistics—January-March, 1932.—During the first quarter of the year 1932, 152,212 births and 153,426 deaths were registered in England and Wales, giving a birth rate on an annual basis of 15.3 per 1,000 population and a death rate of 15.4 per 1,000. The figures are provisional. The number of deaths of infants under 1 year of age was 13,281 for the quarter, 87 per 1,000 live births.

During the 13 weeks ended April 2, 1932, deaths from certain communicable diseases were reported in 117 county boroughs and great towns, including Greater London, as follows:

Disease	Number of deaths	Death rate per 1,000 population	Disease	Number of deaths	Death rate per 1,000 population
Diarrhea and enteritis (under 2 years)	657		Scarlet fever	83	0.02
Diphtheria	402	0.08	Smallpox	1	
Influenza	3,964	.78	Typhoid fever	15	
Measles	900	.18	Whooping cough	631	.12

Deaths from certain diseases in 125 smaller towns for the quarter ended March 31, 1932, were as follows:

Disease	Deaths	Disease	Deaths
Diarrhea and enteritis (under 2 years)	74	Scarlet fever	8
Diphtheria	47	Typhoid fever	2
Influenza	895	Whooping cough	91
Measles	81		

England and Wales—Infectious diseases—Thirteen weeks ended April 2, 1932.—During the 13 weeks ended April 2, 1932, cases of certain infectious diseases were reported in England and Wales, as follows:

Disease	Cases	Disease	Cases
Diphtheria	11,830	Puerperal pyrexia	1,411
Ophthalmia neonatorum	1,272	Scarlet fever	19,464
Pneumonia	25,063	Smallpox	823
Puerperal fever	575	Typhoid fever	341

PUERTO RICO

San Juan—Notifiable diseases—Four weeks ended May 21, 1932.—During the four weeks ended May 21, 1932, cases of certain notifiable diseases were reported in San Juan, Puerto Rico, as follows:

Disease	Cases	Disease	Cases
Chicken pox	9	Pellagra	1
Diphtheria	8	Typhoid fever	2
Leprosy	1	Vincent's angina	2
Malaria	18	Whooping cough	11
Measles	35		

YUGOSLAVIA

Communicable diseases—May, 1932.—During the month of May, 1932, certain communicable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	26	8	Poliomyelitis	1	
Cerebrospinal meningitis	14	3	Scarlet fever	232	14
Diphtheria and croup	368	38	Sepsis	1	2
Dysentery	17		Tetanus	37	25
Erysipelas	124	12	Typhoid fever	84	19
Measles	839	14	Typhus fever	34	6
Paratyphoid fever	2				

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place		Dec. 13, 1931–Jan. 9, 1932	Jan. 10–Feb 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Week ended—											
						April, 1932				May, 1932				June, 1932			
						9	16	23	30	7	14	21	28	4	11	18	25
China:																	
Canton	C				2			1				1	1	2	49	330	
	D											1		1	22	152	
Hankow	C	2	1	1				3			8					6	
	D	1						1			3						
Hong Kong	C																9
	D																9
Nanking	C															123	
	D															45	
Shanghai	C									11	11	8	40	92	90	130	
	D										1	1	1	10	9	22	
Swatow	C											1			1		49
	D																3
Tientsin	C														3	16	
	D															5	
India	C	14,889	10,001	5,826	4,952	1,519	1,432	1,709									
	D	7,684	5,267	2,788	2,358	780	719	863									
Bombay	C	1		1													
	D	1		1													
Calcutta	C	58	133	118	162	53	114	53	130	174	228	141	106		63		
	D	25	70	54	73	25	56	25	42	58	125	79	59	38	27		
Chittagong	C		6	1	2												
	D		1	2	1												
Madras	C			3	6												
	D			3	3												
Rangoon	C	1										1					
	D	1										1					
India (French):																	
Chandernagor	C	3								11		3	5				
	D	3								5		2	5				
Karikal	C		35	2													
	D		17														

Pondicherry Territory	C		15		2												
	D		15		2												
Pondicherry	C				1												
	D				1												
India (Portuguese)	C	1															
	D	1															
Indo-China (see also table below):																	
Pnompenh	C		2			1						1		1		1	
	D		2			1						1		1		1	
Saigon and Cholon	C	2	1	1	1			1	1	1	1	2	2	2	2	1	
	D							1	1	1	1	2	2	1	1	1	
Iraq: Amara	C	2															
	D	2															
Japan:																	
Kobe	C														1		
Tokyo	C														1		
Persia:																	
Khorramabad	C	3															
	D	10															
Kouh Bezman	C								[1] 1								
Philippine Islands: Capiz Province	C	26	22	23													
	D	19	20	20													
Siam:																	
Ayudhaya Province	C		1		1	1	1					8					
	D		1		2		1					7					
Bangkok	C		1		2	1											
	D		1		1												
On vessel:																	
S. S. Angora at Rangoon from Calcutta	C				1												
S. S. Narbada at Rangoon from Calcutta	C					1											
	D					1											
S. S. Shanghai Maru at Kobe from Shanghai	C													1			
S. S. President Wilson en route to Manila from Honolulu via Shanghai and Hong Kong	C																2
	D																1

Place		November, 1931	December, 1931	January, 1932	February, 1932			March, 1932			April, 1932			May, 1932		
					1-10	11-20	21-29	1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20	21-31
Indo-China (French) (see also table above):																
Annam [2]	C				4									93	20	21
	D				4									7	2	6
Cambodia [2]	C	4	3	12	3	2		6	1	3	4	1	20	12	6	
	D		2	6	2	2		3	1	1	3		8	2	1	
Cochin-China [2]	C	6	14	5	7		P	3	2	4	3	6	18	11	30	
	D	4	7	4	5			2	1	2	2	3	13	8	21	
Laos [2]	C										7					
	D										3					

[1] A suspected case.

[2] Reports incomplete.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE[1]

[C indicates cases; D, deaths; P, present]

Place		Dec. 13, 1931–Jan. 9, 1932	Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Week ended— April, 1932: 9	April 16	April 23	April 30	May, 1932: 7	May 14	May 21	May 28	June, 1932: 4	June 11	June 18	June 25
Argentina: Cordoba Province[2]	C	1	1				2										
Belgian Congo	C	1											2				
British East Africa (see also table below):																	
Tanganyika	C		10		2												
	D		10														
Uganda	C	63	31	8	4	1	7	13	18	11	9						
	D	62	26	6	4	1	6	11	18	7	8						
Canary Islands: Palma Island—Los Lanos	C		8								1						
	D		8														
Ceylon: Colombo	C	4	5	4	3		1		1	1	3		2	5	3		
	D	4	3	3	3		1		1	1	1		2	5	3		
Plague-infected rats		1	1		1				1	5	2	2		4			
China:																	
Kwang Chow Wan	C				8												
	D				8												
Shensi Province	C			P													
Dutch East Indies:																	
Java—																	
Surabaya	C		2														
	D		2														
Tegal	C			1													
Java and Madura	D	587	499	459	362	98	75	95	97	70	62						
West Java	C	203	201	141	213	68	52	64	55								
	D	203	200	139	213	68	52	63	54								
Ecuador (see table below).																	
Egypt:																	
Alexandria	C		2		2					1	2	1	8	1	2		
	D										2		1	2	1	1	
Assiout	C	2	1														
	D	2	1														
Beheira	C		11						1	2				1	1		
	D		2						1	3				1			
Beni Suef	C							4	33	2							
	D								8	3							
Gharbieh	C													2		1	
	D														1		
Girga	C	1															
	D	1															
Kena	C	2															
	D	2															

Minieh	C	7	1		3												
	D	7	1		3												
Port Said	C	1															
	D	1															
Tanta	C		1														
	D		1														
Hawaii Territory:																	
Hawaii Island—																	
Hamakua—																	
Honokaa	C			2													
	D			2													
Plague-infected rat				1													
Kukaiau—Plague-infected rats													1	1			
Maui Island—																	
Makawao	C			1													
	D			1													
Plague-infected rats				4													
India	C	6,998	7,892	8,593	9,724	1,804	1,400	1,279									
	D	2,912	3,971	4,970	5,543	1,065	852	859									
Bassein	C		1	4	9	4			1	2					2		1
	D			4	7	3		1		2					2		
Bombay	C			5	8	6	3	5	5	2	2	1		1			
	D			5	6	5	3	5	2	1	2	1		1			
Plague-infected rats		42	57	109	117	30	23	35	34	25	21	1	11	3			
Madras	C							[3]1									
	D							1									
Madras Presidency	C	169	2,951	70	158	42	16	11		18							
	D	59	155	47	86	14	6	4		4							
Rangoon	C	1		9	4	4	1	1	1				1				
	D	1	1	8	4	4	1		1								
Plague-infected rats		1		2	8	4			1		2		1		1		
Indo-China (see table below).																	
Iraq: Baghdad	C	2	5	3													1
	D			1													
Madagascar (see also table below): Tamatave	C	1															
Peru (see table below).																	
Senegal (see table below).																	
Siam	C	1	1	1	7												
	D	1	1		3												
Southwest Africa.[4]																	
Syria: Beirut	C					1			1							1	
Union of South Africa: Orange Free State	C	P	P	P	P												
	D				10												
United States: California—Los Angeles—Plague-infected rats						1				2					1		
On vessel: Steamship Columbia, at Naples, from Barcelona—Plague-infected rats																	1

[1] Including plague in the United States and its possessions.
[2] 10 cases of bubonic plague were reported in Cordoba Province, Argentina, in January, 1932. They were distant from railroad and 500 kilometers from ports.
[3] An imported case.
[4] 80 cases of plague with 15 deaths were reported in Ovamboland, Southwest Africa, up to Apr. 30, 1932. Antiplague measures have been taken.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place		December, 1931	January, 1932	February, 1932	March, 1932	April, 1932	May, 1932	June, 1932
British East Africa (see also table above): Kenya	C	41	17	33	22	18	9	
Ecuador:								
Province—								
Chimborazo	C		8	13		6	10	2
Loja	C		11					
Indo-China	C	9	17	P	P	9	2	
	D	5	9			6	1	
Madagascar (see also table above):								
Province—								
Ambatolampy	C		23	40	25			
	D		23	38	25			
Ambositra	C	142	166	90	81			
	D	121	152	81	67			
Antisirabe	C	56	53	45	54			
	D	51	51	45	53			
Maevatanana	C				4			
	D				4			
Miarinarivo	C	14	15	13	9			
	D	14	15	12	9			
Moramanga	C	30	13	9	3			
	D	29	13	9	3			
Tananarive	C	248	203	148	91			
	D	241	196	140	70			

Place		December, 1931	January, 1932	February, 1932	March, 1932	April, 1932	May, 1932	June, 1932
Peru	C	21	11	2				
	D	9	8	2				
Department—								
Canete	C		3					
Libertad	C		1			28		
Otuzco	C						1	
Lima	C		6		1			
Lima	C			1	1	1	1	
	D			1				
Piura	C		1					
Senegal								
Dakar [5]	C				10			
	D				5			
Louga [5]	C						3	
	D						2	
Rufisque [5]	C						2	
	D						2	
Thies [5]	C	1						
	D	1						
Yombel [5]	C				9			
	D				5			

[5] Reports incomplete.

SMALLPOX

Place		Dec. 13, 1931–Jan. 9, 1932	Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Week ended— March, 1932: 12	19	26	April, 1932: 2	9	16	23	30	May, 1932: 7	14	21	28	June, 1932: 4	11	18
Aden	C		2			1													
Algeria:																			
Algiers	C	1																1	
Constantine Department	C									1		1	1		1				
Philippeville	C											1							
Southern Territories	C			2															
Brazil:																			
Porto Alegre (alastrim)	C	35	34	19		3	1	1	2	1	2	3	2						
	D	2					1												
Rio de Janeiro	C	1																	
Santos	C		2																
British East Africa: Tanganyika	C	55	24	5				P					79	11					
	D	4	7	2															
British South Africa:																			
Northern Rhodesia	C	7	5																
Southern Rhodesia	C	1						4	1	6									
Canada:																			
Alberta	C	11																	
British Columbia	C	5	25	17	6		2	1											
	D		4	9		1		2											
Manitoba	C		10							1									
Nova Scotia	C			1															
Ontario	C	14	6	21	1			3		2	4		1			23			
North Bay	C		1																
Quebec	C	3	1	8															
Saskatchewan	C	11	35	30	5			1		1	5	2	3	1	3	6			
Chile: Tocopilla	C	2																	7
China:																			
Amoy	C	218	183	121	15	12	8	10	7	5	4	1	3		2	3			
	D	79	91	44	5	7	3	10	4	3	3	1	2		2	2			
Canton	C	18	27	44	21	18	29	11	24	18	22	17	19	9	5	9	1	3	
	D			1	7						1		1						
Foochow	C	P	P	P		P		P		P		P		P		P			
Hankow	C	47	59	4			3	2	1		1	1	1	1	3				
	D	12	5	1															
Hong Kong	C	1	11	51	12	7	17	9	12	13	21	9	7	9	7	1	4	5	2
	D		6	23	7	6	7	8	2	6	6	6	7	6	2	2	4	6	1
Manchuria—Dairen	C		1	1	3	1	7	5	7		1		1		1				

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Dec. 13, 1931–Jan. 9, 1932	Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Week ended— March, 1932 12	March 19	March 26	April, 1932 2	April 9	April 16	April 23	April 30	May, 1932 7	May 14	May 21	May 28	June, 1932 4	June 11	June 18
China—Continued.																			
Shanghai	C	155	163	167	30	29	13	30	22	24	22	22	16	6	5	6	3	3	------
	D	41	62	67	15	17	6	7	7	10	8	10	6	5	------	2	1	2	------
Swatow	C	2	------	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Tientsin	C	------	1	2	1	6	1	------	1	1	------	------	1	------	------	------	2	------	------
	D	------	------	1	------	1	------	------	------	------	------	------	------	------	------	------	------	------	------
Chosen (see table below).																			
Colombia: Cali	C	1	------	------	------	------	------	------											
Dahomey	C	------	------	------	------	------	3	3	------	------	------	2	2	------	------	------	------	15	------
	D	------	------	------	------	------	------	1	------	------	------	------	------	------	------	------	------	------	------
Dutch East Indies: Batavia	C	1	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
	D	------	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Egypt:																			
Alexandria	C	------	------	------	------	------	------	1	------	------	------	------	------	1	1	------	------	------	1
Cairo	C	------	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Suez	C	------	------	2	3	5	7	5	1	1	2	------	1	------	------	------	------	------	------
	D	------	------	------	------	1	1	1	------	------	------	------	------	------	------	------	------	------	------
France (see table below).																			
Germany: Aix-la-Chapelle	C	------	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Gold Coast (see table below).																			
Great Britain:																			
England and Wales	C	198	227	258	76	61	41	95	70	87	95	62	68	76	56	68	49	36	25
London	C	100	100	136	28	23	23	55	30	25	48	34	41	39	25	29	49	18	15
London and Great Towns	C	152	188	203	57	56	37	86	57	63	86	51	59	60	47	52	37	31	37
Greece (see table below).																			
Guatemala (see table below).																			
Honduras [1]																			
Ceiba	D	------	------	1	------	1	1	------	1	------	------	1	------	------	------	------	------	------	------
Puerto Castilla	C	------	1	4	------	------	------	------	------	------	------	4	------	------	1	P	------	------	2
Tegucigalpa	C	------	------	5	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Tela	C	------	------	------	------	------	------	2	2	------	------	------	------	------	------	1	------	------	------
Trujillo	C	------	------	35	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
	D	------	------	5	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
India	C	2,361	4,576	9,709	3,006	2,339	2,818	3,877	4,093	3,431	3,083	------	------	------	------	------	------	------	------
	D	464	970	1,896	580	405	518	731	783	705	665	------	------	------	------	------	------	------	------

Bassein	C		3						1										
	D								1										
Bombay	C	3	6	23	8	8	4	7	7	7	8	3	10	12	2	12	7	4	
	D	2	2	10	4	3	1	4	2	3	5		2	4	1	5	4	2	
Calcutta	C	7	27	102	22	41	50	43	39	19	40	36	17	35	22	19	15	16	
	D	3	15	54	14	30	36	35	30	11	22	36	12	29	16	10	17	14	
Chittagong	C					2								2					
	D					1								1					
Cochin	C		1	9	2		1		1										
Karachi	C	3	18	23	4	3	3	9	6	4	10	9	4	5	3	4	7	5	3
	D		6	8	1	1	3	3	2		2	5		2	1	3	1	1	1
Madras	C	7	9	15	15	9	15	12	15	20	13	10	17	10	10	10	3	8	
	D	2	3	4	6	4	1	5	4	2	2	3	2	4	2	3		3	
Moulmein	C		4	4	4	2	1		1										
Negapatam	C			1			1								1	2			
	D		1												1				
Rangoon	C	39	147	418	172	128	163	143	116	71	32	41	18	26	13	9	6	10	
	D	10	40	127	61	37	50	31	32	28	12	16	9	11	6	2	4	4	
Tuticorin	C	6	28	36	9	4		1		3		2	4						
	D		2	8	4	4		1		1		2	5						
Vizagapatam	C	2		3			2												
India (French):																			
Karikal	C	4	1	4	3	2	8	6	3	15	1	2	2	4	1	4			
	D	2	1	4		1	2	6	3	6	1	2	2	2	1	2			
Pondicherry Territory	C	22	32	20	11	10	1	7	3	10	6	3	3	5	28	11		4	2
	D	22	27	20	7	10	4	5	2	8	6	3	3	5	28	11		4	2
Indo-China (see also table below):																			
Pnompenh	C		1	2			1												
Saigon and Cholon	C	32	117	146	54	45	71	42	33	35	32	13	12	8	8	5	3	3	3
	D	24	92	85	48	35	60	31	30	32	27	12	11	7	7	5	3	3	2
Iraq:																			
Baghdad	C	15	10	4	1	1	12	6		5	10	12	4	7	10		14	9	3
	D	8	13	4	1		5	4		2	5	6	2	3	3		6	4	2
Basra	C	1	2	2			4	7	1	1	1	1	1	1			2	4	2
	D	2								1	2	1		1			1		1
Ivory Coast (see table below).																			
Japan:																			
Kobe	C			1	1		1			1				1	7	2			
	D				1											1			
Nagasaki	C												1	4	4	4	1	1	1
Osaka Prefecture [2]	C										3	90	34	48					
Osaka	C													1					
Taiwan	C		35	58		1					1								
Yokohama	C	1	2																
Mexico (see also table below):																			
Chihuahua	D			3				1	1						1			5	
Durango	D								1										
Jalisco (State)—Guadalajara	D	1	3		1						1	1		1			1	1	
Mexico City and surrounding territory	C	8	14	33	6				2	5	6	3	3	2	3	9			
	D			1							1	1		1					

[1] 590 cases of smallpox with 15 deaths were reported in Honduras from July, 1931, to Feb. 16, 1932.
[2] 200 cases of smallpox were reported in Osaka Prefecture, Japan, from Mar. 1 to May 24, 1932.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Dec. 13, 1931–Jan. 9, 1932	Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Week ended— March, 1932: 12	19	26	April, 1932: 2	9	16	23	30	May, 1932: 7	14	21	28	June, 1932: 4	11	18
Mexico—Continued.																			
Monterrey	C		1	8	1					1	1		1			1			
Saltillo	D														1	2	2		
San Luis Potosi	D	2	5	2	2	1				1	1		1			1		1	
Torreon	C	2	6	2		1	1		1			2		1	1	1	1	1	1
	D	2	2	3		1	1		1			2		3			1		
Morocco (see table below).																			
Nigeria	C		217	46		270	1	480			82	34		939					
	D		120	2		24	1	86			6	13		316					
Palestine	C													1					
Poland	C	1												1			1		
Portugal:																			
Lisbon	C	108	98	50	10	14	8	6	5	11	4	6	10	5	8	6	2		6
Oporto	C	2	3	14	4	4	4	2	10	6		5	3	5	8	8	4	9	8
Salvador	C			85	10														
Siam	C	13	1		2											1		1	
Sierra Leone [1]																			
Straits Settlements	C	2	4	6	1														
	D		1		2														
Sudan (Anglo-Egyptian)	C	2	3	8	1		3			1		2						1	1
	D		1	1															
Sweden: Malmo	C		9																
Syria (see table below).																			
Tunisia: Tunis	C	1			1														
Turkey (see also table below): Istanbul	C			1						1				1					
Union of South Africa:																			
Cape Province	C	P							P	P	P	P	P	P	P				
Orange Free State	C									P	P	P							
Transvaal	C					P	P					P	P		P				
On vessels:																			
Brazilian ship Jaboatoa at New Orleans from Brazil	C	1																	
S. S. Tacoma at Manila from Shanghai	C	1																	
S. S. Cressington Court at Yokohama from Shanghai	C		1																
S. S. Bollington Court at Yokohama from Shanghai	C		1																

Place																			
S. S. Victoria City at Brisbane from Shanghai	C		1																
S. S. Bellasco at Mobile from Habana, Cuba, and Hull, England	C	1																	
S. S. Frauenfels at Suez from Calcutta	C				1														
S. S. Uwajima Maru at Osaka from Shanghai	C		1																
S. S. President Jackson at Yokohama from San Francisco via Honolulu	C	1																	
S. S. Hong Kheng at Singapore from Amoy, via Swatow and Hong Kong	C		1																
S. S. Hai Ning and S. S. Solviken at Hong Kong	C		P																
S. S. Merkara at Aden from Colombo	C		2																
S. S. Tjisadane at Hong Kong from Shanghai and Amoy	C		P																
S. S. Poafung at Shanghai	C		1																
S. S. Rajula at Penang from Negapatam	C		P																
S. S. MacGillivary at Suez from Rangoon	C				[4] 1														
S. S. Tainui at Southampton from New Zealand	C						[4] 1												
S. S. Glenbank at Suez from Aden	C							1											
S. S. Tuscania at Suez from Bombay	C														1				

Place		November, 1931	December, 1931	January, 1932	February, 1932			March, 1932			April, 1932			May, 1932	
					1-10	11-20	21-29	1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20
Gold Coast	C			2											
	D			1											
Indo-China (see also table above)	C	120	509	209	145	206	309	230	275	222	175	247	146	211	78
	D	22	93	148	47	98	86	109	113	120	80	97	64	46	37
Ivory Coast	C	1													
	D	1													
Syria: Beirut	C			5							1		1		

Place		October, 1931	November, 1931	December, 1931	January, 1932	February, 1932	March, 1932	April, 1932
Chosen	C	7	2	1	1	6	30	55
	D	1				3	9	5
France	C		6	1				
Greece	C						1	8
Guatemala	C				5			
	D				1			
Mexico (see also table above)	D	427	419	423				
Morocco	C	91	152	279	488	368	308	101
Turkey (see also table above)	C				31	22	2	
	D				1	1		

[3] From Mar. 6 to Apr. 30, 1932, 551 cases of smallpox with 6 deaths, were reported in Sierra Leone.

[4] A suspected case.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

Place		Dec. 13, 1931–Jan. 9, 1932	Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Week ended— March, 1932: 12	March, 1932: 19	March, 1932: 26	April, 1932: 2	April, 1932: 9	April, 1932: 16	April, 1932: 23	April, 1932: 30	May, 1932: 7	May, 1932: 14	May, 1932: 21	May, 1932: 28	June, 1932: 4	June, 1932: 11	June, 1932: 18
Algeria:																			
Algiers	C	4	1	3			7			8	9	23	7	23	31		8		
Constantine Department	C	5	7			7											1		
Geryville	C		7	1															
Oran	C				1											4	10		
Bulgaria	C	22	44	66	12	10	12		15	6	15	9	10	7	16	5	4		
	D	3	6	6	1	1				3	4	2		2	1		1		
Chile:																			
Antofagasta	C	1	1												1				
Santiago	C					1				1									
China:																			
Hankow	C	4				1	3	1						1		1			
Swatow	C			2															
Tientsin	C													1					
Chosen (see table below).																			
Colombia: Cali	D			1															
Czechoslovakia (see table below).																			
Egypt:																			
Alexandria	C	5		1					5	2	7					1	5	2	
Beheira	C	7		70				46				5							
	D			16								1							
Dakahlia	C														69				
Gharbieh	C	1		12								5							
	D											2							
Provinces	C	11	43	333	148	164	164	200	112	49	41	20	27	38	33	60	139		
	D	2	3	25	15	17	17		18	9	12	4	6	1	1		10		
Greece (see table below).																			
Irish Free State:																			
Roscommon County—																			
Leitrim	C														1				
	D														1				
Roscommon	C																1		
Waterford County—Lismore	C	1																	

Latvia (see table below).																			
Lithuania (see table below).																			
Mexico:																			
Guadalajara	D	1																	
Mexico City, including municipalities in Federal District	C	11	25	20	2	3	2		3	2	3	3	2		5	1			
	D	6	9	12	2		2		1		2					2			
San Luis Potosi	D	1		1		1													
Morocco	C	9	6	59	3	21		5	9	7	3	15	3	7	7	2	13	5	
	D	1		6	2	4			1									3	
Palestine	C	4	3	1									1				2	1	
Paraguay: Asuncion	D			1															
Poland	C	193	265	215	74	65	52	64	85	95	119	115	70	106	105	98	83	77	
	D	14	10	21	5	5	4	8	5	10	11	13	7	4	5	9	3	4	
Portugal:																			
Lisbon	C																2	5	
Oporto	C		1	1					10				3				4		
Rumania	C	108	264	296	82	79	56	53	89	62	55	46	61						
	D	10	13	28	12	8	6	5	8	6	5	2	8						
Tunisia: Tunis	C	2	1	24	14	26	10	31	32	6	20	19	26	15	13		13	9	
	D			3	2		3	3	4										
Turkey (see table below).																			
Union of South Africa:																			
Cape Province	C	P	P	P		P	P	P	P	P	P	P	P	P	P				
Natal	C	P		P							P	P	P						
Orange Free State	C	P	P	P	P		P	P	P	P	P	P	P	P	P				
Transvaal	C	P	P	P															
Venezuela: Caracas (see table below).																			
Yugoslavia (see table below).																			
On vessel: At Antofagasta, from Iquique and points north	C	1																	

Place		December, 1931	January, 1932	February, 1932	March, 1932	April, 1932	May, 1932
Chosen: Seoul	C			5	4		
	D			1			
Czechoslovakia	C	10	1			1	
	D	3					
Greece	C	6	4	4	7	1	
	D	1					
Latvia	C	12					

Place		December, 1931	January, 1932	February, 1932	March, 1932	April, 1932	May, 1932
Lithuania	C	20	21	10	32	25	13
	D	1	8	3	3	5	1
Turkey	C	21	14	22	6	1	
	D	2	3	1	3		
Venezuela. Caracas	D	1	2				
Yugoslavia	C	14	11	26	5	29	34
	D	1		2	1		6

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

YELLOW FEVER

[C indicates cases; D, deaths; P, present]

Place		Dec. 13, 1931–Jan. 9, 1932	Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Week ended— March, 1932			April, 1932					May, 1932				June, 1932			
					12	19	26	2	9	16	23	30	7	14	21	28	4	11	18	25
Brazil:																				
Bahia State	C	2																		
Esplanada	C												P							
Ceara State	C											1								
	D											1								
Espirito Santo State	C					2			1	P	P	P								
	D					2			1											
Santa Teresa (about 56 miles from Victoria)	D			1																
Parahyba State	C																			1
	D																			1
Pernambuco State	D								1											
Dahomey: Porto Novo	C							1												
	D							1												
Gold Coast:																				
Avudua	C							1	1											
Cape Coast	C				P															
Tamale	C					1														
Yapei	C			1																
Nigeria	C															1				

UNITED STATES TREASURY DEPARTMENT

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SPECIAL ARTICLE

A Discussion of Postvaccination Encephalitis with Special Reference to Prevention

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

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CONTENTS

PUBLIC HEALTH REPORTS

VOL. 47 July 22, 1932 NO. 30

POSTVACCINATION ENCEPHALITIS [1]

With Special Reference to Prevention

By CHARLES ARMSTRONG, *Surgeon, United States Public Health Service*

Postvaccination encephalitis,[2] a disease of unknown etiology, was first brought to the attention of the medical profession in 1924. Approximately 700 cases, with a case fatality rate of 40 per cent, have now been recognized. With the exception of 71 cases recorded for the United States during the past 10 years, reports of this complication have been largely confined to European countries, Holland, England, Germany, Sweden, and Norway having been most severely affected. Within certain of the affected countries a peculiar "spotty" distribution of cases has been noted. Within the United States the heaviest incidence so far recorded occurred during the autumn of 1930 in a city of 450,000 inhabitants, where 5 cases of postvaccination encephalitis developed among school children within a period of 13 days. These cases had been vaccinated by five different physicians who employed various types of single insertions. During the following fall two additional cases developed in this same city, again among children entering school.

The occurrence of such localized areas of heavy incidence apparently is not explainable upon the relative number of vaccinations performed or by the vaccination method employed, nor can it be said to have followed any particular batch or strain of vaccine virus. European cases have followed the use of rabbit-brain virus as well as calf strains from many sources. In the United States, cases have followed the employment of calf virus from 10 out of a total of 12 vaccine establishments.

Postvaccination nervous complications usually, though not invariably, follow the first or primary "take" and are therefore largely confined to children. Among the 71 American cases, 2 are stated to have followed a second vaccination. In affected countries where infant vaccination is practiced to a considerable extent, a relative

1 From the Cutter Lecture delivered at Boston, Mass., Mar. 31, 1932.

2 As a designation for this complication, "postvaccination" encephalitis is deemed preferable to "postvaccinal" or "postvaccinial" encephalitis, because the complication follows the vaccination but usually appears at the height of, rather than after, the vaccinia. The term "postvaccination" is, moreover, noncommittal as to the vaccinal or nonvaccinal nature of the ailment.

rarity of this complication has been noted following vaccinations performed during the first year of life as compared with primary vaccinations performed at later ages.

Postvaccination encephalitis may develop from a few days to several weeks following the vaccination, but there is a striking tendency for it to make its appearance when the vaccinia is at its height—in other words, from the 10th to 13th day, inclusive, following primary vaccinations, with a suggestion that the interval tends to be somewhat shortened in cases following secondary vaccinations.

European cases have usually, though not invariably, followed multiple-insertion vaccinations, this until recently having been the approved method of vaccination in the affected countries. In the United States, on the other hand, all cases except one have followed single-insertion vaccinations.

In some instances the nervous complications have followed "takes" of exceptional severity and in a few instances were accompanied with the appearance of generalized lesions interpreted as vaccinal in nature. It is clear, however, that in many instances the local "takes" ran a satisfactory course and were not of exceptional severity. The character of the systemic vaccine response in these cases is more difficult to determine, as they usually merge with the symptoms of the complication, the etiology of which is still obscure.

DIAGNOSIS AND SYMPTOMS

The Rolliston Committee, in their report of the English cases, stress headaches, vomiting, drowsiness, and fever as being usually present. The same symptoms, to which should be added some degree of rigidity of the neck, have also been quite constant in American cases.

A detailed discussion of the variable nervous manifestations that have been encountered in cases of postvaccination encephalitis is not required for the present purpose. Suffice it to say that they may point to involvement of the meninges, the brain, the brain stem or cord, or, more usually, to a combined involvement of two or more of these structures. Cases have been mistaken for tetanus, meningitis of epidemic or tuberculous type, meningismus, encephalitis lethargica, poliomyelitis, sunstroke, cerebral hemorrhage, epilepsy, and hysteria.

In case the differential diagnosis lies between postvaccinal tetanus and postvaccination encephalitis, an interval of 14 days or less from vaccination to onset of symptoms strongly favors encephalitis, while one of 17 days or longer favors tetanus.

The spinal fluid in postvaccination encephalitis is clear, shows no visible or cultivatable organisms, and may be essentially normal. However, it is usually under increased pressure with an augmented cell count, and in a few instances the presence of small amounts of vaccine virus has been demonstrated.

PATHOLOGY

The central nervous system changes encountered in postvaccination encephalitis are similar to those encountered in the nervous system involvement which occasionally follows acute infections other than vaccinia. The findings in these cases consist of adventitial and periadventitial round cell infiltration distributed throughout the brain and cord.

With appropriate staining methods, areas of myelin degeneration may be seen centered about the smaller vessels, which gradually fade into normal myelin structure.

Numerous attempts have been made to produce this same pathological picture in animals through inoculations of vaccine virus or with materials from human cases of postvaccination encephalitis. Such attempts have, in my experience, as well as in that of the majority of workers, met with failure.

Some investigators, notably McIntosh and his coworkers, have attempted to explain these failures on the assumption that demyelination as found in man is of only secondary importance in the pathology of this disease. Thus they endeavor to bring the human pathology more into line with experimental lesions produced by vaccine virus *per se*, which virus they hold to be the direct cause of the complication in man.

In view of the similarity of vaccinal lesions in corresponding tissues of various susceptible species, it is difficult to see why the brain and cord lesions of man and of animals, if due to a direct action of vaccine virus, should be so different. The paucity, or even apparent absence, of vaccine virus in the central nervous system lesions of cases of postvaccination encephalitis and its abundance in experimental vaccinal lesions of the brain or cord of animals is a further difficulty to the acceptance of McIntosh's views.

PROGNOSIS

Among European cases 42 per 100 have ended fatally, while of 71 American cases the mortality was 37 per cent. Nonfatal cases usually recover promptly and without sequelae. Exceptions to this rule do, however, occur. Among the 71 cases which we have collected for this country, there is one patient vaccinated in 1929 who developed postvaccination encephalitis 14 days later and in whom there remains to-day a marked mental deterioration.

Another patient who developed symptoms of a complete transverse myelitis 13 days following vaccination in 1930 still shows complete flaccid paralysis of both legs, with anaesthesia below the level of the umbilicus.

ETIOLOGY

That the relationship between vaccination and postvaccination encephalitis is not an accidental one is admitted by all students of the subject, but the relationship remains obscure.

At the present time, opinion as to the direct cause of this complication is chiefly divided between the vaccine virus and some unknown virus assumed to be activated in the presence of vaccinia. Others have suggested that the complication is in some way related to the development of the vaccine sensitive or immune state. Again, it has been suggested that some vitamin or other dietary factor may be concerned. Lastly, as might be expected, some have attempted to incriminate pleomorphic streptococci and other types of bacteria, as well as protozoa and yeasts, all of which are assumed to be activated in the presence of vaccinia.

Those who contend that the condition is caused by vaccine virus *per se* are able to marshal several isolated facts in support of their contention, such as the following:

1. The occasional finding of vaccine virus in the brain or spinal fluid of human cases and the failure to date to find any other virus.
2. The fact that the complication usually follows primary rather than secondary vaccinations.
3. The fact that the complication usually appears when the vaccinia is near its height—with the suggestion that in cases following secondary vaccinations the interval from vaccination to onset tends to be shortened.
4. The apparently good results reported in a few instances following the employment in treatment of serum from recently vaccinated individuals.

However, such facts fall short of compelling one to accept the view as to the vaccinal nature of this complication. Moreover, even if vaccine virus should be proved ultimately to be the direct cause of postvaccination encephalitis, it seems that it will still be necessary to assume the existence of some accessory determining factor; otherwise it is difficult to explain the recent prevalence of the complication and its peculiar geographical distribution.

Those who attribute postvaccination encephalitis to the action of some unknown virus, harmless under ordinary conditions, are forced to assume that the agent becomes pathogenic when associated with vaccinia, or perhaps with other acute infections. Thus the complication is brought into line with the epidemiologically, clinically, and pathologically quite similar cases of encephalitis which rarely follow various acute infections. While the concept of a single causative agent for these various encephalitides is an attractive one, there is as yet no direct proof in support of this theory.

It seems, therefore, that we should keep an open mind as regards the etiology of postvaccination encephalitis until more facts are accumulated.

PREVENTION

In the absence of definite information as to the etiology of postvaccination encephalitis, attempts at its prevention are more or less empirical. However, it is an established fact that primary infant vaccinations and likewise secondary vaccinations performed at any age both tend to be relatively quite unlikely to be followed by this complication. Now, in both of these relatively insusceptible groups the vaccination reactions tend to be milder than is the rule among primary vaccinations performed after the first year of life and in which the susceptibility to postvaccination encephalitis is highest. Without committing ourselves as to the etiology, it seems logical, therefore, to hope that any procedure which would influence the vaccinated individual toward a more effective immunity response to vaccinia might be of advantage in an attempt to prevent this complication.[3]

My attempts in this regard were suggested by certain well-known observations. For instance, it has been a common experience that healthy, plump animals react most severely to vaccinia. On the other hand, scrawny animals, or those actually ill of some other infection, react poorly or even not at all to the same virus. Likewise, in man, as noted by Gordon, spare and thin individuals tend to stand vaccination better than do plump, full-blooded ones. I have also been impressed by the frequency with which postvaccination encephalitis and also postvaccinal tetanus have occurred in robust, apparently healthy children.

Proceeding upon the homely fact that judicious exercise is essential for the functional well-being of familiar tissues—even to bones and teeth—it may be assumed that the same is true of those tissues which constitute the defense mechanism, wherever and whatever they may be. It was therefore decided to determine whether a preliminary immunization by the injection of nonspecific antigens might increase temporarily the animal's efficiency in its reaction against a subsequent inoculation with vaccinia.

That it is possible to influence favorably the course of various diseases through the parenteral administration of various nonspecific

[3] Likewise, the employment of a conservative vaccination method such as the multiple pressure technique, which tends to reduce the local and systemic vaccine response, also seems indicated. England, Holland, and Germany have abandoned their previously advocated multiple insertion vaccinations and now advise a single small insertion. Following this change, there has been a notable falling off in the number of reported cases of postvaccination encephalitis in these countries which can not, however, with certainty be attributed to this change, since there has been a coincident falling off in the number of primary vaccinations of the more susceptible age groups.

antigens is believed by many, and constitutes the basis of the well-known nonspecific protein therapy originally introduced by Renaud in 1911 and by Kraus in 1915.

It has also been noted that acute infections occurring in an individual suffering from a chronic type of infection may favorably modify the course of the latter—for instance, malaria in paresis, or vaccinia in leprosy. Leprosy lesions, according to Denny and Hopkins, are often intensified for a short period by vaccination, only to regress later—often to an actual improvement as compared with the prevaccination state. Howk and Lawson also report instances wherein an attack of smallpox has been followed by striking amelioration of symptoms in cases of tuberculosis. This type of nonspecific immunization has been designated by Wright as "collateral immunization," and the list of ailments wherein it has been invoked could be greatly extended.

There are instances, moreover, in which a preliminary infection has appeared to influence a subsequent infection, or, in other words, wherein "nonspecific" stimulation of the defense mechanism has been utilized in the sense of prophylaxis rather than treatment. For instance, Pierce, 1928, in her work on rabbit syphilis, showed that a coincident inoculation with vaccinia and with syphilis gave an intensified type of syphilis. However, when rabbits were inoculated with syphilis subsequent to vaccination, it was found that the vaccine-immune animals reacted more effectively to the syphilis than did the nonvaccinated controls. For instance, in the vaccine-immune animals the interval from inoculation with syphilis to onset of symptoms was shortened, metastatic orchitis came on later and in a slightly smaller per cent of cases; and generalized lesions, when they appeared, also came on later and were of shorter duration in the vaccinated group. Thus, at the end of three months, 31 per cent of the vaccine-immune animals were healed as to syphilitic lesions, as against 3.3 per cent for the controls.

Likewise, Kinloch studied the effect of vaccinia upon the course of subsequently acquired acute infections in children under 5 years of age, and found that both complications and deaths were fewer in the previously vaccinated group.

In this connection the work of Bieling, which has been extended and confirmed by others, is of interest. Bieling demonstrated that animals previously treated with dysentery bacilli were able to form agglutinins against typhoid bacilli when injected with only a fraction of the amount of antigen that would be required to produce agglutinins in normal animals. It then seems probable that such a heightened irritability of the defense mechanism as noted by Bieling would tend toward an earlier reaction to natural infections. But

no one seems to have made practical application of the principle or to have considered it possible of general application.

The following observations indicate, as might be expected, that the early hours following effective exposure to infection are critical ones in so far as the outcome is concerned. In my experimental work I have had numerous opportunities to observe that animals vaccinated with a concentrated virus or on a large area react more severely than do those vaccinated in a small area or with a diluted virus. Now we must remember that vaccine virus is capable of infinite multiplication, and that it is perhaps but a few hours until the virus in the conservatively vaccinated animals equals that introduced in the vigorously vaccinated ones; yet the reaction inaugurated by the conservatively vaccinated animal during this interval is apparent in the milder type of infection. It then seems axiomatic that the more vigorous this early response the greater would be the protection.

It is apparent, however, that any enhanced efficiency gained through previous "nonspecific" stimulation of the defense mechanism is not an absolute preventive of subsequent infections. But it is possible that it might tend to prevent postvaccination nervous complications through rendering the vaccine response more like the milder and relatively insusceptible infant and secondary vaccinations.

In an attempt to verify experimentally the hypothesis that previous nonspecific inoculations would render an animal's response to vaccinia more efficient, I have made use of an observation made by Rosenau and Andervont. These investigators showed that a strain of vaccine virus developed at the National Institute of Health was capable of producing a fatal meningo-encephalitis when introduced into the brains of white mice. The plan followed was to immunize mice against various antigens and subsequently compare the number of deaths among previously immunized and nonimmunized groups following intracerebral inoculations with vaccine virus.

A dose of virus was selected through preliminary titration which was slightly less than sufficient to kill all of a group of normal mice. Diphtheria toxoid, broth, and typhoid vaccine have been utilized for making the preliminary inoculations.

Diphtheria toxoid was, however, utilized in most of our tests, because it is known to be an efficient exerciser of the immune mechanism, and also because if efficiency was indicated experimentally it could be utilized in children by the simple procedure of administering diphtheria immunization first, followed by vaccination against smallpox, rather than in the reverse order as is now the custom in many localities.

In each experiment, mice for the test and control groups were from the same shipment and were placed in cages usually of 25 mice each. The preliminary inoculations consisted usually of 0.5 c c of the

selected antigen given subcutaneously and repeated after an interval usually of about two weeks. Control groups were similarly injected with saline.

The intracerebral inoculations with vaccine virus followed the second inoculation in various tests by intervals of from 3 to 30 days.

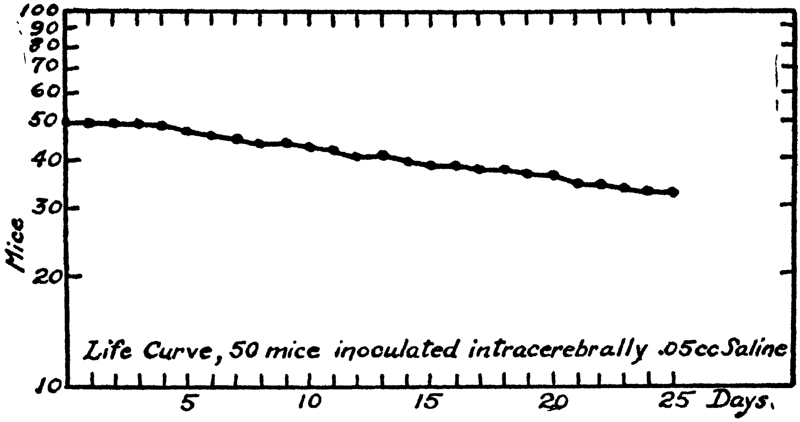

CHART 1

The best interval has yet to be established. The one most frequently utilized in these tests was about three weeks. This long interval was dictated by the work of Glenny and Südmersen, who showed that immunity to diphtheria in animals develops slowly.

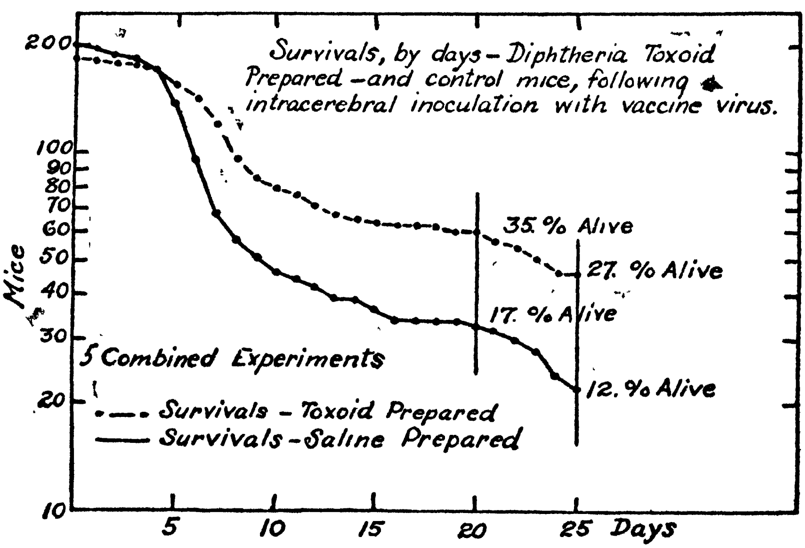

CHART 2

The virus employed for intracerebral inoculations varied in dilution from 1:1,000 to 1:4,000, depending upon the age and batch of virus employed.

The intracerebral inoculations were made under ether by injecting 0.05 c c of the virus suspension through the skull of the right parietal region by means of a 0.25 c c syringe and a 25-gage needle.

The mice which died following inoculation were examined postmortem in order to determine any apparent cause of death other than the inoculation. The gross pathology in mice, however, is not very distinctive, and the cause of death in noninoculated mice often was not apparent. In addition to autopsy we therefore resorted to testing the brains of dead inoculated mice for vaccine virus by the vaccination of rabbits. Virus was usually abundant in the brains of mice dying from three to nine days following inoculation, but was rarely demonstrable by this method after the tenth or twelfth day. The

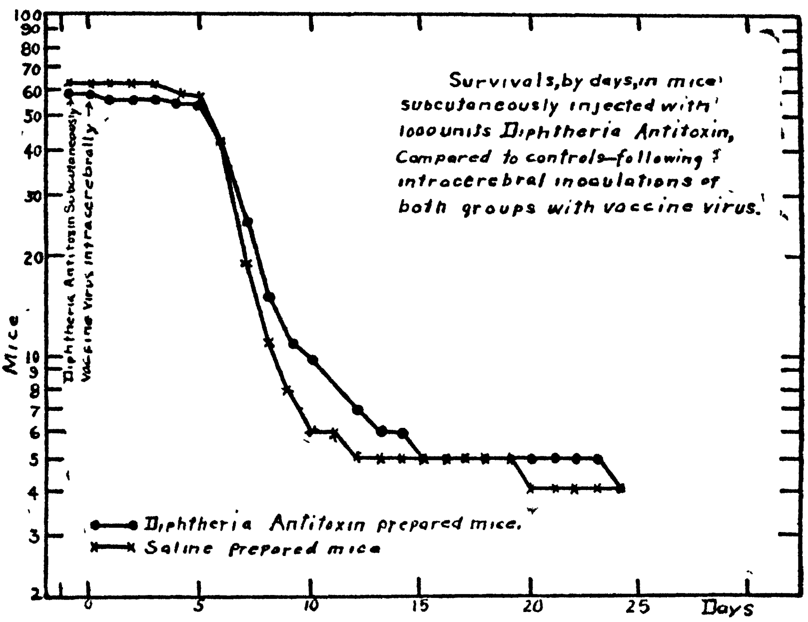

CHART 3

number of deaths which were inconsistent with vaccinia were so few and the number was so similar in test and control groups that they have been ignored; i. e., all deaths occurring during 25 days following the intracerebral inoculations have been considered as vaccinal in nature.

The investigation showed that there were more survivals in the toxoid immunized groups than in the other groups and that the toxoid-treated mice tended to die later than the controls. Occasionally a group would fail to show the protective tendency, but there were no exceptions wherein enough animals were tested to be significant. It is noteworthy that, subcutaneously, 1,000 units of diphtheria antitoxin failed to protect mice against intracerebral inoculation with vaccine virus administered the following day. (Chart 3.)

Table 1.—*Deaths, by days, in mice inoculated intracerebrally with vaccine virus*

Day of death following intracerebral inoculation	Preliminary inoculations													
	Toxoid	Saline	Toxoid	Saline	Toxoid	Saline	Toxoid	Saline	Broth	Typhoid	Toxoid	Saline	Toxoid	Saline
	Dilutions of vaccine virus employed for intracerebral inoculation													
	Exp. 1		Exp. 2		Exp. 3		D				E		Totals	
	1/1000	1/1000	1/1000	1/1000	1/2500	1/2500	1/3000	1/3000	1/3000	1/3000	1/4000	1/4000		
1								2	1					2
2		2			1		1	4	2		1	1	3	7
3				2			1	2	3	6		1	1	5
4			7	4	1			2	1	1		2	8	8
5	2	5	3	6	4	4	1	1	7	7	4	4	14	20
6		4	2	3	2	10	6	8	13	12	3	15	13	40
7			2		2	2	4	3	8	10	13	20	21	25
8				1	3	4	6	2	2	3	16	22	25	29
9					1		2	1	2	2	7	4	10	5
10								3		1	5	4	5	7
11	1							2		1	2	3	3	5
12							1	2	1	1	4		5	2
13	1							3			2		3	3
14											2		2	
15								1	2		1		1	1
16										1	1	2	1	2
17												2		2
18											1		1	
19	1										1		2	
20								1		3				1
21							1				2	1	3	1
22							1	1	1		1	1	2	2
23			1				1			1	3	2	5	2
24								4			4		4	4
25									1			2		2
Inoculated	5	11	17	16	19	20	43	47	55	62	98	104	182	198
Dead	5	11	15	16	14	20	25	42	44	49	73	86	132	175
Lived	0	0	2	0	5	0	18	5	11	13	25	18	50	23
Per cent lived	0	0	11.7	0	26.3	0	41.8	10.7	20.0	20.9	25.6	17.3	27.4	11.6

The results can best be shown by reference to Table 1 and Charts 1, 2, and 3. While the results indicate that the protection afforded by a previous nonspecific stimulation is only relative and not absolute, it is believed that the test is rather a severe one, since the remarkable mechanism of some sort which is capable of protecting the central nervous system against vaccine introduced other than into the central nervous system itself is not permitted to operate in these experiments. The method employed has by means of a hypodermic needle penetrated this defense, and it would appear that the saving of such an inoculated animal would be more difficult than the prevention of an occasional brain involvement in the presence of an intact defense mechanism.

Inoculated mice which failed to die in some instances showed nervous symptoms, such as spasm or hyperexcitability, from which they recovered; others, however, showed no apparent ill effects. That these latter mice had, however, received living vaccine virus is indicated by the fact that when such recovered animals were tested

with an intracerebral inoculation of rather concentrated virus, 69 per cent remained alive for 25 days, as compared to 4 per cent of the control group.

This protection of a few mice from a cerebral virus infection by means of a previous nonspecific stimulation of the defense mechanism does not necessarily lead to the conclusion that children could be similarly protected from postvaccinal encephalitis. The final test in man must, of course, be sought in epidemiological investigations, and it is in the hope of stimulating such investigations that these experimental results have been reported. However, if the functional status of the defense mechanism has any bearing upon the susceptibility to disease among individuals devoid of a specific immunity, its influence should be apparent in other better understood ailments showing a feeble infecting power, such as poliomyelitis. And in this disease there are certain observations which appear to bear upon this point. For instance, the New York Poliomyelitis Commission in 1916 noted that among 954 poliomyelitis patients 1 to 4 years of age the attack rate among the Schick positive was six to seven times as high as among the Schick negative children.

The commission summed up its observation in the following words: "*A susceptibility to one of the less contagious diseases indicates that the child is also more apt to be susceptible to other contagious and infectious diseases.*"

This observation suggests that an active immunity to diphtheria is associated, probably within the limits of a certain time factor, with a lessened susceptibility to poliomyelitis, a disease of low infectivity. The same observers noted that in measles cases the percentage of positive Schick reactors was "somewhat similar" to that found among normal children of the same age group, possibly indicating, as might be expected, that nonspecific protection was not effective against a highly infectious disease such as measles. In scarlet fever, the infectivity of which, according to Frost, is fifteen times that of poliomyelitis, but in which the infectivity is less than that of measles, the per cent of positive Schick reactors was midway between that found for normal children and for poliomyelitis cases,[4] thus suggesting that immunity to diphtheria is associated with some degree of protection against a recognizable infection with scarlet fever.

It has been contended that the explanation for this interesting observation at New York is to be found in the fact that resistance to both poliomyelitis and diphtheria increase with age at about the same rate. This must be admitted; but why immunity to both diseases

[4] It is conceivable that an attack of poliomyelitis or scarlet fever may render a portion of Schick negative children temporarily Schick positive, as has been claimed by Finkelstein for vaccinia. However, it is noted that measles apparently failed to alter the Schick reaction in the New York cases reported by the poliomyelitis commission in 1916.

should be so constantly associated with the same individuals is not easily explainable on the assumption of a chance contact with the two infective agents. Such an explanation necessitates the assumption that children who suffer contacts sufficient to contract the organisms of diphtheria are the ones effectively exposed to poliomyelitis virus, which exposure results in a specific immunity to that disease usually without recognizable symptoms. On the other hand, an exposure insufficient to infect with diphtheria bacilli must also be considered insufficient to permit spread of poliomyelitis virus. Thus there would be a tendency for the immunes to both diseases, and likewise for the susceptibles to both diseases, to be associated in the same groups respectively.

It should be remembered, however, that when a poliomyelitis virus capable of causing recognizable symptoms made its appearance in New York in 1916, it was precisely in the diphtheria-susceptible group that its spread was most in evidence, notwithstanding the fact that there was no doubt a voluntary effort to reduce contacts during the epidemic. The same tendency was apparent for the scarlet-fever cases.

On the basis of contact it is also difficult to see why susceptibility to measles and diphtheria did not behave as did susceptibility to poliomyelitis and diphtheria. Although measles probably does not require as close contact for transmission as does diphtheria, it yet seems that a contact sufficiently close to convey diphtheria should also favor the spread of measles as well as poliomyelitis.[5]

In order to determine whether susceptibility and likewise immunity to diphtheria and to scarlet fever tended to be associated in the same individuals, respectively, in Washington, I have studied the Schick and Dick reactions, simultaneously performed by Surgeon R. E. Dyer and Surgeon W. T. Harrison, in some 479 previously nonimmunized children from 3 to 15 years of age. Among these children 72 per cent and 49 per cent were shown to be susceptible to diphtheria and scarlet fever, respectively, on the basis of these tests. When one considers the susceptibility to diphtheria among those susceptible and those immune to scarlet fever, it is found that the percentage of Dick positives is only 1.5 times as great for the Schick positive group as for the Schick negative group. (It was also found that the per cent of diphtheria-susceptible children by these tests was but 1.25 times as great among Dick positive children as among Dick negative ones.)

It is realized that this group of 479 individuals is not comparable in many ways to the New York group, but it is felt that they do serve to measure the tendency of specific resistance and suceptibility to

[5] A review of the mortality records shows that measles was endemic in New York City for several years prior to 1916.

two diseases to run parallel in the same individuals. Apparently the tendency seems hardly sufficiently marked to explain the New York observations relative to poliomyelitis and diphtheria. Moreover, the studies cited from New York were made at the Willard Parker Hospital, which served poliomyelitis cases from Manhattan, the most densely populated borough of New York City. On the basis of opportunity for contact it would seem, therefore, that immunity to diphtheria should be relatively high among children from this locality.

It is possible, however, that some artificial selection of cases might have influenced the character of the group studied by the Schick test, for instance, if only the children of the well-to-do had been hospitalized. It is noted, however, that 96 per cent of "suitable cases" were hospitalized. Moreover, among 1,499 poliomyelitis cases from 1 to 4 years of age which were reported for Manhattan, 774 among 954 tested were found to be Schick positive. Considering the remaining 545 untested children as entirely Schick negative, there would still be 51.6 per cent of the poliomyelitis cases in the Schick positive group, or well above the 30 to 40 per cent reported for normal children of the same ages. It appears, therefore, barring errors of observation, that in 1916 poliomyelitis had exerted some selectivity for Schick positive children from 1 to 4 years of age in New York City. This association of resistance to diphtheria and to poliomyelitis, a disease of feeble invasive powers, in the same individuals becomes the expected result if we assume that the ability readily to develop a specific immunity against diphtheria indicates an efficient defense mechanism, which, as noted for mice, may be rendered even more efficient against other types of infection through its experience gained with diphtheria.

Surg. W. T. Harrison has recently completed a survey of some 159 cases of poliomyelitis, together with a control group of apparently noninfected familial exposures, in order to ascertain whether a history of diphtheria immunization prior to onset of poliomyelitis in the home exerted any apparent influence upon the attack rate of the latter disease. The figures showed no variations which he deemed of significance. It seems, however, that a time factor which he has not yet considered may be of importance. For instance, it would seem reasonable to conclude that where the defense mechanism against diphtheria is stimulated only by artificial immunization, the postulated nonspecific protection for other ailments would gradually fade. On the other hand, where immunity is gained naturally through repeated contact with diphtheria organisms or through the carrier state, which were the usual methods in 1916, we would have a more or less chronic state of stimulation present which would tend to keep the defense mechanism mobilized and active. Moreover, following inoculation against diphtheria, a proportion of cases always

fail to develop immunity. Persons thus difficult to immunize are scattered throughout the population irrespective of inoculation, while in a grouping dependent upon the Schick reaction they tend to fall largely in the Schick positive group. Thus the grouping of cases upon the basis of history and of Schick reaction is not strictly comparable. Moreover, from the viewpoint which has been suggested it would seem that this group, which responds poorly to toxins or antigens, is of especial interest and should receive consideration in any study of susceptibility to diseases of feeble infectivity.[6]

There is certainly a specific immunity to poliomyelitis as there is to many other diseases, but the assumption that resistance to a virulent strain of poliomyelitis virus is always dependent upon a specific immunity gained through contact with feeble strains of that virus is hardly an established fact.

It is conceivable, moreover, that the various postinfectious encephalitides which are apparently on the increase may be due to a common faulty response to infections on the part of a functionally inadequate defense mechanism.

This conception would offer an explanation for the occasional finding of vaccine virus in the spinal fluid of postvaccination-encephalitis cases and its absence in approximately 100 uncomplicated vaccinations so far used as controls by various investigators.

It is probable that infections differ in their ability to exercise the immunity mechanism; for instance, many of the common respiratory diseases apparently give little specific immunity and could hardly be expected, therefore, to call forth nonspecific protection.

Where primary school vaccination is practiced it is probable, therefore, that for many children vaccinia is a notable experience, constituting their first exposure to a disease which gives a solid immunity; and it appears that the evidence submitted rather suggests the advisability of giving the child, especially if more than 1 year old, the benefit of experience with the nonviable diphtheria toxoid which has not, so far as I know, occasioned encephalitis, before it is submitted to inoculation with vaccine virus, a living antigen capable of infinite multiplication. Even were no immunity to nervous complications conferred, the fact that in recent years in the United States diphtheria has maintained a death rate seventy times as high as has smallpox would seem to dictate such a change.

SUMMARY

The only practicable means so far suggested for preventing the encephalitis occasionally noted following smallpox vaccination have to do with the vaccination procedure.

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[6] Antitoxins and antiviral antibodies are strikingly similar in their neutralizing behavior, and the work of Finkelstein, above referred to, rather indicates that the same mechanism is concerned in their production.

A suitable vaccination technique is defined as one employing a small superficial insertion, never over one-eighth inch in greatest diameter and which employs no routine dressing.

Infancy is the best time for performing primary vaccinations in so far as the prevention of postvaccination encephalitis is concerned.

Evidence is presented which suggests that inoculation with diphtheria toxoid tends to render mice somewhat more resistant to vaccine virus subsequently administered intracerebrally.

It is suggested that primary vaccinations, especially after the first year of life, be deferred until contemplated immunization against diphtheria or other diseases by means of inanimate antigens has been accomplished.[7]

The hope is expressed that a recent preliminary exercise or mobilization of the immunity or defense forces may lead to a more efficient anti-vaccine-virus response, with the result that the ensuing reaction may tend to simulate primary infant or secondary vaccinations in their comparative mildness and freedom from postvaccination encephalitis. The suggestion is made that possibly the high percentage of poliomyelitis cases recorded among diphtheria-susceptible children in New York in 1916 may be due in part to an increased resistance to poliomyelitis among children immune to diphtheria.

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[7] It is suggested that the first dose of diphtheria toxoid be given preferably at 6 months of age and the second dose 1 month later; vaccination against smallpox to follow the second inoculation in from 3 to 4 weeks. The same procedure is suggested for older children also.

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COURT DECISION RELATING TO PUBLIC HEALTH

City milk ordinance held not applicable to delivery of milk to State prison located in city.—(Kentucky Court of Appeals; Board of Councilmen of City of Frankfort et al. *v.* Commonwealth et al., 49 S. W. (2d) 548; decided May 3, 1932.) One section of the milk ordinance of the city of Frankfort made it unlawful, with certain exceptions, for any person, without a valid permit from the city health officer, to bring or to receive into the city for sale, or to sell or offer for sale, or to have in possession, any milk products defined by the ordinance. The State penitentiary was located in Frankfort, and the State purchasing commission had contracted with a certain individual for the supplying of milk at the prison. Two persons engaged in carrying out this contract were summoned to answer a charge of delivering milk in the city without a permit from the city health officer. These persons were not delivering milk for private sale or for consumption by the general public. The Commonwealth, on the relation of the State purchasing commission, and the contractor, individually, brought action to enjoin the prosecution of the case or of other similar cases. The validity of the ordinance was not assailed, but its application to State institutions located within the city was denied. The court of appeals said that the State, in pursuance of a constitutional mandate, had made provision for the management and control of

State institutions located in Frankfort, that there was no express provision of law conferring upon the city any right to superimpose additional, or any, regulations upon the internal management of the prison, and that the milk ordinance, even though valid within its sphere, had no application to the State governmental functions controlled by a separate and distinct authority.

DEATHS DURING WEEK ENDED JULY 2, 1932

Summary of information received by telegraph from industrial insurance companies for the week ended July 2, 1932, and corresponding week of 1931. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)

	Week ended July 2, 1932	Corresponding week, 1931
Policies in force	72, 288, 818	75, 049, 104
Number of death claims	13, 658	12, 274
Death claims per 1,000 policies in force, annual rate	9. 9	8. 5
Death claims per 1,000 policies, first 26 weeks of year, annual rate	10. 2	10. 5

Deaths [1] from all causes in certain large cities of the United States during the week ended July 2, 1932, infant mortality, annual death rate, and comparison with corresponding week of 1931. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)

[The rates furnished in this summary are based upon mid-year population estimates derived from the 1930 census]

City	Week ended July 2, 1932				Corresponding week, 1931		Death rate [2] for the first 26 weeks	
	Total deaths	Death rate [2]	Deaths under 1 year	Infant-mortality rate [3]	Death rate [2]	Deaths under 1 year	1932	1931
Total (85 cities)	7,096	10. 1	558	[4] 44	12. 5	633	12. 0	12. 9
Akron	32	6 3	3	37	8. 7	1	7. 6	8. 2
Albany [5]	36	14 4	4	82	6 1	1	14 6	14. 8
Atlanta [6]	75	13 8	6	58	21 2	10	13 8	15. 8
White	42	11. 7	3	44	18 7	5	10 9	12. 6
Colored	33	18 0	3	86	26 3	5	19. 6	22. 2
Baltimore [5] [6]	186	11. 9	8	28	13 3	20	14. 0	15. 6
White	142	11 1	7	32	11 2	11	13 0	14. 3
Colored	44	15. 3	1	16	23 1	9	18. 4	21. 8
Birmingham [6]	50	9. 4	3	31	15 1	12	11. 7	14. 6
White	17	5 2	2	33	10 6	7	9. 1	11. 2
Colored	33	16. 4	1	27	22 4	5	15. 9	20. 0
Boston	175	11. 6	16	48	11 8	20	15. 1	15. 1
Bridgeport	30	10 6	3	53	11 0	2	11. 3	12. 1
Buffalo	116	10 3	2	10	11 2	9	13. 4	14. 1
Cambridge	19	8. 7	1	21	8 7	2	13. 4	13. 2
Camden	34	14 9	9	158	10 1	3	15. 5	15. 3
Canton	19	9 2	7	174	9. 8	2	9. 8	11. 1
Chicago [5]	578	8 6	38	37	18 4	58	10. 4	11. 6
Cincinnati	110	12. 4	5	32	16 8	15	15. 5	16. 8
Cleveland	184	10 4	14	45	11 6	11	11. 5	12. 0
Columbus	61	10. 6	7	70	13. 6	6	14. 0	14. 7
Dallas [6]	62	11. 5	13		9 9	5	10. 9	12. 0
White	48	10 7	11		9 0	4	10. 0	10. 5
Colored	14	15 0	2		14 3	1	15. 1	18. 9
Dayton	42	10. 6	5	72	13 0	2	12. 4	13. 1
Denver	73	13. 0	5	49	11. 1	8	15. 2	14. 7

See footnotes at end of table.

Deaths[1] from all causes in certain large cities of the United States during the week ended July 2, 1932, infant mortality, annual death rate, and comparison with corresponding week of 1931. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended July 2, 1932				Corresponding week, 1931		Death rate[2] for the first 26 weeks	
	Total deaths	Death rate[2]	Deaths under 1 year	Infant-mortality rate[3]	Death rate[2]	Deaths under 1 year	1932	1931
Des Moines	26	9.3	0	0	14.4	1	11.8	11.9
Detroit	240	7.3	29	52	7.0	27	8.2	9.1
Duluth	16	8.2	2	58	4.1	1	11.1	11.0
El Paso	27	13.2	10		12.4	6	14.2	16.8
Erie	23	10.1	2	42	6.6	0	12.0	11.3
Evansville	20	9.9	0	0	18.5	2	10.2	12.2
Fall River [5,7]	22	10.0	3	80	9.0	0	12.5	12.8
Flint	22	6.8	2	29	9.2	2	8.1	7.8
Fort Wayne	18	7.8	4	103	7.5	0	10.5	11.3
Forth Worth [6]	22	6.7	1		9.0	4	10.2	11.6
White	15	5.4	0		9.3	3	9.8	11.2
Colored	7	13.7	1		7.7	1	12.5	13.8
Grand Rapids	27	8.1	2	34	10.3	3	9.2	9.9
Hartford	37	11.4	1	13				
Houston [6]	64	10.3	8		10.6	7	11.1	11.5
White	47	10.3	6		11.3	6	10.3	10.7
Colored	17	10.4	2		8.8	1	13.3	13.6
Indianapolis [6]	93	13.0	7	57	17.3	6	13.2	14.5
White	80	12.7	5	46	16.4	4	12.8	14.0
Colored	13	14.7	2	137	24.2	2	15.6	18.0
Jersey City	62	10.1	3	25	9.5	2	11.8	12.6
Kansas City, Kans.[6]	26	11.0	1	22	16.1	5	12.7	14.2
White	23	12.0	1	27	16.8	3	12.4	13.2
Colored	3	6.6	0	0	13.3	2	14.2	18.6
Kansas City, Mo	96	12.1	3	34	17.6	7	12.6	14.3
Knoxville [6]	14	6.5	3	76	13.8	1	12.2	13.6
White	12	6.7	3	84	12.6	1	11.2	12.5
Colored	2	5.7	0	0	20.5	0	17.5	19.2
Long Beach	17	5.5	1	26	8.6	0	9.2	10.2
Los Angeles	209	7.9	14	42	9.4	21	10.8	11.1
Louisville [6]	67	11.3	5	46	14.0	3	13.5	15.4
White	49	9.8	4	42	13.2	3	12.2	13.7
Colored	18	19.7	1	75	18.6	0	20.7	24.5
Lowell [7]	26	13.6	4	105	9.4	3	14.5	13.5
Lynn	31	15.7	0	0	6.6	1	11.4	10.7
Memphis [6]	84	16.7	11	120	19.5	9	16.6	17.1
White	42	13.5	5	85	16.0	3	13.0	14.0
Colored	42	21.8	6	181	25.3	6	22.3	22.0
Miami [6]	21	9.6	1	28	10.7	1	11.8	12.6
White	14	8.3	0	0	9.6	0	10.6	11.5
Colored	7	14.5	1	101	14.4	1	16.1	16.3
Milwaukee	94	8.2	11	52	14.3	15	9.2	10.2
Minneapolis	79	8.6	4	26	19.1	8	10.8	12.0
Nashville [6]	39	13.0	7	104	21.8	6	15.2	17.5
White	24	11.0	5	98	19.9	5	13.8	15.1
Colored	15	18.3	2	125	26.8	1	18.8	23.8
New Bedford [7]	17	7.9	3	86	10.7	4	12.1	13.2
New Haven	42	13.5	5	100	9.6	2	12.9	12.6
New Orleans [6]	157	17.3	21	119	19.5	21	15.7	17.7
White	101	15.7	15	131	16.5	10	13.3	14.4
Colored	56	21.3	6	98	27.1	11	21.5	25.9
New York	1,286	9.3	80	36	9.3	96	11.3	12.2
Bronx Boro	178	6.7	6	17	7.6	10	8.3	8.9
Brooklyn Boro	452	8.8	30	33	8.5	41	10.5	11.3
Manhattan Boro	486	14.3	32	46	13.1	36	17.4	18.6
Queens Boro	123	5.3	9	37	6.6	7	7.3	7.9
Richmond Boro	47	14.7	3	59	12.8	2	14.3	14.2
Newark, N. J	84	9.8	7	38	12.4	8	11.3	12.6
Oakland	57	10.0	1	13	7.5	3	10.7	10.9
Oklahoma City	85	8.9	3	41	8.7	2	10.3	11.8
Omaha	82	7.6	8	84	22.9	4	13.5	14.6
Paterson	85	13.2	2	36	12.4	4	13.8	14.7
Peoria	21	9.9	0	0	28.4	0	11.5	13.5
Philadelphia	455	12.0	29	45	11.6	33	13.8	14.6
Pittsburgh	148	11.4	10	46	13.6	20	13.5	16.1
Portland, Oreg	46	7.7	1	13	10.5	1	11.5	12.2
Providence	42	8.6	6	58	11.0	3	14.1	14.0
Richmond [6]	47	13.3	6	90	12.7	4	14.1	16.6
White	28	11.0	2	45	11.5	2	11.6	14.0
Colored	19	18.8	4	183	15.8	2	20.4	22.9

See footnotes at end of table.

Deaths[1] from all causes in certain large cities of the United States during the week ended July 2, 1932, infant mortality, annual death rate, and comparison with corresponding week of 1931. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended July 2, 1932				Corresponding week, 1931		Death rate[2] for the first 26 weeks	
	Total deaths	Death rate[2]	Deaths under 1 year	Infant-mortality rate[3]	Death rate[2]	Deaths under 1 year	1932	1931
Rochester	90	14.0	5	48	16.3	6	12.7	13.0
St. Louis	197	12.4	13	46	23.0	18	14.0	16.9
St. Paul	39	7.3	2	21	18.5	4	10.6	11.6
Salt Lake City[5]	31	11.2	4	63	10.2	3	11.1	12.5
San Antonio	50	10.6	14	------	13.5	17	14.1	16.0
San Diego	31	9.9	1	22	8.7	2	14.6	14.4
San Francisco	143	11.3	7	48	10.7	3	12.9	13.4
Schenectady	11	6.0	0	0	7.0	0	10.8	10.9
Seattle	73	10.1	6	60	8.1	2	12.1	12.0
Somerville	23	11.3	1	40	6.4	0	9.7	10.3
South Bend	9	4.2	5	145	10.6	2	7.8	8.8
Spokane	20	8.9	1	27	13.5	2	12.4	12.8
Springfield, Mass	25	8.5	3	51	7.9	3	11.7	12.8
Syracuse	47	11.4	3	39	13.2	2	12.3	12.5
Tacoma	23	11.1	2	55	7.7	0	12.5	12.8
Tampa[6]	26	12.6	1	29	11.4	5	12.1	12.8
White	14	8.6	0	0	10.1	4	11.4	11.8
Colored	12	27.5	1	158	16.4	1	14.6	16.4
Toledo	50	8.7	2	22	9.7	6	12.2	12.7
Trenton	45	18.9	0	0	11.4	2	16.6	17.7
Utica	22	11.2	0	0	11.2	1	16.3	15.2
Washington, D. C.[6]	141	14.9	15	84	15.4	12	17.2	16.9
White	86	12.6	7	57	13.2	5	15.3	14.5
Colored	55	21.0	8	142	21.2	7	22.1	23.2
Waterbury	14	7.2	1	33	9.8	1	9.8	10.3
Wilmington, Del.[7]	24	11.8	5	113	11.7	3	15.9	15.3
Worcester	50	13.2	1	14	8.2	2	13.0	13.5
Yonkers	15	5.5	0	0	5.6	0	8.2	9.4
Youngstown	26	7.8	2	32	11.8	4	10.1	10.9

[1] Deaths of nonresidents are included. Stillbirths are excluded.

[2] These rates represent annual rates per 1,000 population, as estimated for 1932 and 1931 by the arithmetical method.

[3] Deaths under 1 year of age per 1,000 estimated live births Cities left blank are not in the registration area for births

[4] Data for 81 cities.

[5] Deaths for week ended Friday.

[6] For the cities for which deaths are shown by color, the percentages of colored population in 1930 were as follows. Atlanta, 33; Baltimore, 18, Birmingham, 38, Dallas, 17, Fort Worth, 16; Houston, 27, Indianapolis, 12, Kansas City, Kans., 19; Knoxville, 16, Louisville, 15, Memphis, 38, Miami, 23, Nashville, 28; New Orleans, 29; Richmond, 29, Tampa, 21, and Washington, D. C., 27.

[7] Population Apr. 1, 1930; decreased 1920 to 1930, no estimate made.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended July 9, 1932, and July 11, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 9, 1932, and July 11, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended July 9, 1932	Week ended July 11, 1931	Week ended July 9, 1932	Week ended July 11, 1931	Week ended July 9, 1932	Week ended July 11, 1931	Week ended July 9, 1932	Week ended July 11, 1931
New England States:								
Maine	1	5	-------	-------	48	31	0	0
New Hampshire	1	1	-------	-------	23	11	0	0
Vermont	1	1	-------	-------	56	24	0	0
Massachusetts	28	51	-------	2	467	330	0	1
Rhode Island	1	4	-------	-------	16	92	0	0
Connecticut	1	5	1	-------	100	110	0	1
Middle Atlantic States:								
New York	70	117	[1] 8	[1] 10	987	1,299	6	9
New Jersey	25	35	1	-------	414	352	3	5
Pennsylvania	44	53	-------	-------	518	840	2	9
East North Central States.								
Ohio	18	28	6	4	319	734	1	5
Indiana	17	15	8	-------	29	94	1	4
Illinois	41	67	6	10	260	631	0	7
Michigan	13	14	1	1	934	198	1	5
Wisconsin	2	5	9	9	363	318	0	1
West North Central States:								
Minnesota	5	3	1	-------	32	48	1	1
Iowa	9	-------	-------	-------	2	3	0	0
Missouri	21	12	1	-------	13	16	0	1
North Dakota	-------	3	-------	-------	6	4	0	0
South Dakota	4	1	-------	-------	1	1	0	0
Nebraska	7	2	5	-------	2	1	0	0
Kansas	4	1	1	4	54	26	0	1
South Atlantic States:								
Delaware	-------	1	-------	-------	-------	34	0	0
Maryland [2]	6	8	1	1	10	119	0	2
District of Columbia	10	4	-------	-------	5	12	0	2
Virginia	7	-------	-------	-------	58	-------	1	-------
West Virginia	12	3	7	2	173	25	1	0
North Carolina	11	13	4	2	186	190	1	1
South Carolina	8	4	123	-------	82	36	0	0
Georgia [3]	7	8	18	8	32	19	1	1
Florida [3]	5	6	-------	8	1	26	0	0
East South Central States·								
Kentucky	-------	-------	-------	-------	-------	56	1	2
Tennessee	8	-------	12	-------	1	11	3	0
Alabama [3]	12	10	3	-------	2	39	1	1
Mississippi	6	6	-------	-------	-------	-------	0	0

[1] New York City only.
[2] Week ended Friday.
[3] Typhus fever, week ended July 9, 1932, 32 cases: 6 cases in Georgia, 2 cases in Florida, 3 cases in Alabama, and 21 cases in Texas.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 9, 1932, and July 11, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended July 9, 1932	Week ended July 11, 1931	Week ended July 9, 1932	Week ended July 11, 1931	Week ended July 9, 1932	Week ended July 11, 1931	Week ended July 9, 1932	Week ended July 11, 1931
West South Central States:								
Arkansas	3	4	2			2	0	0
Louisiana	15	20	14	15			0	0
Oklahoma [4]		4	8	12	11	5	1	0
Texas [3]	34	21	19		91	18	3	0
Mountain States:								
Montana	2				24	18	1	0
Idaho		1				1	0	0
Wyoming		1			14	5	0	0
Colorado	4	6			29	28	0	0
New Mexico	4	1			1	5	0	0
Arizona		1	2		1	5	0	0
Utah [2]				3	4	9	1	0
Pacific States:								
Washington	3	6			77	52	0	1
Oregon	4	2	3	12	34	13	1	1
California	17	48	34	9	103	232	4	3
Total	486	601	293	107	5,583	6,123	35	64

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended July 9, 1932	Week ended July 11, 1931	Week ended July 9, 1932	Week ended July 11, 1931	Week ended July 9, 1932	Week ended July 11, 1931	Week ended July 9, 1932	Week ended July 11, 1931
New England States:								
Maine	2	0	10	9	0	0	5	1
New Hampshire	0	0	8	10	0	0	1	0
Vermont	0	0	3	2	1	12	0	0
Massachusetts	0	6	190	113	0	0	2	5
Rhode Island	0	1	11	10	0	0	0	0
Connecticut	1	7	17	19	0	0	2	1
Middle Atlantic States:								
New York	3	36	257	189	0	25	6	17
New Jersey	1	3	84	78	0	1	8	5
Pennsylvania	4	3	255	209	0	0	14	15
East North Central States:								
Ohio	3	0	73	124	7	29	21	22
Indiana	1	0	28	23	3	49	7	3
Illinois	3	2	110	125	2	46	33	17
Michigan	1	0	190	158	3	14	8	4
Wisconsin	0	3	16	21	1	4	2	6
West North Central States.								
Minnesota	2	1	31	19	9	2	1	2
Iowa	1	0	5	10	2	42	2	1
Missouri	0	0	9	15	0	5	19	12
North Dakota	1	0	0	3	0	6	0	0
South Dakota	0	2	5	4	0	1	1	1
Nebraska	1	1	9	2	2	8	0	3
Kansas	0	0	8	7	1	23	6	5
South Atlantic States:								
Delaware	0	0	7	4	0	0	1	1
Maryland [2]	0	0	18	19	0	0	13	14
District of Columbia	0	0	4	11	0	0	3	0
Virginia	0		20		2		53	
West Virginia	1	0	3	11	0	3	26	6
North Carolina	0	4	9	19	0	0	28	47
South Carolina	2	4	5	1	0	0	50	112
Georgia [3]	0	1	4	10	3	2	51	41
Florida [3]	0	1	0	0	0	0	0	6

[2] Week ended Friday.
[3] Typhus fever, week ended July 9. 1932, 32 cases; 6 cases in Georgia, 2 cases in Florida, 3 cases in Alabama, and 21 cases in Texas.
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa and for 1931 are exclusive of Tulsa only.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 9, 1932, and July 11, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended July 9, 1932	Week ended July 11, 1931	Week ended July 9, 1932	Week ended July 11, 1931	Week ended July 9, 1932	Week ended July 11, 1931	Week ended July 9, 1932	Week ended July 11, 1931
East South Central States:								
Kentucky	1	0	12	13	0	1	70	32
Tennessee	0	0	9	6	3	4	114	42
Alabama [3]	1	4	12	15	10	8	20	38
Mississippi	1	4	5	4	2	16	27	38
West South Central States:								
Arkansas	0	0	3	0	0	12	28	64
Louisiana	0	0	1	6	0	9	23	49
Oklahoma [4]	2	0	8	8	2	17	23	23
Texas [3]	4	0	22	17	13	29	103	24
Mountain States:								
Montana	0	0	0	6	3	1	3	6
Idaho	0	0	0	2	3	0	7	2
Wyoming	1	0	4	1	0	1	0	1
Colorado	0	0	12	10	0	0	2	5
New Mexico	0	0	4	1	0	1	6	2
Arizona	0	0	0	2	0	0	1	2
Utah [1]	0	0	1	1	0	0	0	4
Pacific States:								
Washington	3	1	12	23	6	22	3	5
Oregon	0	0	5	2	7	14	2	3
California	3	6	40	47	5	12	6	11
Total	43	90	1,539	1,389	90	419	796	700

[1] Week ended Friday.
[3] Typhus fever, week ended July 9, 1932, 32 cases: 6 cases in Georgia, 2 cases in Florida, 3 cases in Alabama, and 21 cases in Texas.
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa and for 1931 are exclusive of Tulsa only.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
April, 1932										
Hawaii Territory	4	29	6		272		0	3	0	8
May, 1932										
Mississippi	1	27	1,203	2,363	62	906	4	24	92	50
June, 1932										
Arizona	1	9	12		27		1	21	1	19
Connecticut	2	12	2	1	955		7	304	0	4
Delaware		4			3		0	32	0	2
Indiana	18	61	83		468		0	183	47	31
Iowa	2	31			18		0	158	65	5
Maine		11	13		375	1	1	89	0	4
Tennessee	6	23	79	208	18	123	3	64	36	174

April, 1932	Cases
Hawaii Territory:	
Chicken pox	75
Conjunctivitis, follicular	25
Hookworm disease	80
Impetigo contagiosa	2
Leprosy	3
Mumps	5
Tetanus	2
Trachoma	4
Whooping cough	7

May, 1932	
Mississippi:	
Chicken pox	308
Dengue	2
Dysentery (amebic)	102
Mumps	157
Ophthalmia neonatorum	10
Puerperal septicemia	29
Rabies in animals	9
Rabies in man	1
Trachoma	7
Tularaemia	2
Undulant fever	2
Whooping cough	889

June, 1932	Cases
Chicken pox:	
Arizona	25
Connecticut	499
Delaware	10
Indiana	269
Iowa	95
Maine	118
Tennessee	50
Conjunctivitis:	
Connecticut	11
Maine	3
Dysentery:	
Arizona	1
Connecticut (amebic)	1
Tennessee	130
German Measles:	
Connecticut	7
Iowa	5
Maine	130
Tennessee	118
Lethargic encephalitis:	
Connecticut	1
Mumps:	
Connecticut	250
Delaware	15
Indiana	286
Iowa	71
Maine	26
Tennessee	26
Ophthalmia neonatorum:	
Maine	2
Tennessee	1
Paratyphoid fever:	
Connecticut	2
Puerperal septicemia:	
Tennessee	2
Rabies in animals:	
Connecticut	9
Septic sore throat:	
Connecticut	9
Tennessee	3
Tetanus.	
Iowa	1
Tennessee	1
Trachoma:	
Arizona	12
Indiana	2
Tennessee	46
Trichinosis:	
Connecticut	2
Tularaemia.	
Tennessee	1
Typhus fever:	
Tennessee	1
Undulant fever:	
Arizona	1
Connecticut	7
Indiana	3
Iowa	10
Maine	1
Tennessee	1
Vincent's angina:	
Iowa	2
Maine	6
Tennessee	9
Whooping cough:	
Arizona	41
Connecticut	371
Delaware	29
Indiana	334
Iowa	43
Maine	70
Tennessee	226

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 95 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 33,860,000. The estimated population of the 88 cities reporting deaths is more than 32,300,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended July 2, 1932, and July 4, 1931

	1932	1931	Estimated expectancy
Cases reported			
Diphtheria:			
46 States	492	614	
95 cities	282	300	504
Measles:			
45 States	7,800	6,592	
95 cities	2,411	2,461	
Meningococcus meningitis:			
46 States	32	56	
95 cities	13	26	
Poliomyelitis:			
46 States	42	45	
Scarlet fever:			
46 States	2,071	1,724	
95 cities	886	672	666
Smallpox:			
46 States	89	569	
95 cities	12	37	24
Typhoid fever:			
46 States	609	472	
95 cities	85	64	60
Deaths reported			
Influenza and pneumonia:			
88 cities	347	407	
Smallpox:			
88 cities	0	0	

City reports for week ended July 2, 1932

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded, and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1923 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	2	0	0		0	0	0	1
New Hampshire:								
Concord	0	0	0		0	1	0	0
Manchester	0	0	0		0	0	0	0
Nashua	0	0	0		0	0	0	0
Vermont:								
Barre	0	0	0		0	0	1	0
Massachusetts:								
Boston	44	21	28		0	152	68	10
Fall River	2	2	0		0	18	2	1
Springfield	8	2	53		0	2	0	0
Worcester	9	2	0		0	28	5	7
Rhode Island:								
Pawtucket	0	0	0		0	0	0	0
Providence	0	4	3		0	8	3	2
Connecticut:								
Bridgeport	4	3	0		0	47	0	1
Hartford	3	2	1		0	6	5	3
New Haven	8	0	0		0	1	9	1
MIDDLE ATLANTIC								
New York:								
Buffalo	12	9	0		0	34	0	7
New York	202	180	50	3	5	444	174	86
Rochester	8	5	0		0	3	7	2
Syracuse	8	1	0		0	155	2	1

City reports for week ended July 2, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MIDDLE ATLANTIC—continued								
New Jersey:								
Camden	4	5	1	----------	0	0	0	4
Newark	39	10	2	1	0	91	98	2
Trenton	2	1	0	----------	0	7	1	2
Pennsylvania:								
Philadelphia	43	40	2	----------	1	7	28	18
Pittsburgh	36	13	7	2	2	26	9	15
Reading	5	1	0	----------	0	12	2	2
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	6	3	2	----------	2	0	0	4
Cleveland	35	18	2	----------	1	66	17	9
Columbus	3	2	0	2	2	47	0	1
Toledo	14	3	0	1	1	37	0	2
Indiana:								
Fort Wayne	----------	1	----------	----------	----------	----------	----------	----------
Indianapolis	6	1	1	----------	0	5	16	0
South Bend	1	2	1	----------	0	0	0	1
Terre Haute	1	0	0	----------	0	5	0	0
Illinois:								
Chicago	82	74	24	1	1	215	11	18
Springfield	1	0	0	----------	0	0	0	1
Michigan:								
Detroit	26	34	10	1	1	482	7	20
Flint	6	1	0	----------	0	8	2	0
Grand Rapids	2	1	0	----------	0	7	12	0
Wisconsin:								
Kenosha	0	0	0	----------	0	105	0	0
Madison	0	0	0	----------	----------	13	0	----------
Milwaukee	61	8	0	----------	0	131	6	2
Racine	13	0	0	----------	0	6	3	0
Superior	9	0	0	----------	0	0	0	1
WEST NORTH CENTRAL								
Minnesota:								
Duluth	9	0	1	----------	0	0	7	3
Minneapolis	13	9	7	----------	0	1	3	1
St. Paul	15	4	0	----------	0	7	14	2
Iowa:								
Des Moines	0	1	2	----------	----------	0	0	----------
Sioux City	2	0	1	----------	----------	1	0	----------
Waterloo	0	0	0	----------	----------	0	2	----------
Missouri:								
Kansas City	2	2	4	----------	0	5	10	1
St. Joseph	0	0	1	----------	0	1	0	2
St. Louis	12	21	12	----------	----------	2	4	7
North Dakota:								
Fargo	1	0	0	----------	0	0	0	0
Grand Forks	0	0	0	----------	----------	5	0	----------
South Dakota:								
Aberdeen	1	0	0	----------	----------	0	0	----------
Nebraska:								
Omaha	2	2	4	----------	0	1	0	3
Kansas:								
Topeka	11	0	0	1	0	11	1	1
Wichita	8	0	1	----------	0	1	2	2
SOUTH ATLANTIC								
Delaware:								
Wilmington	0	1	0	----------	0	0	0	1
Maryland:								
Baltimore	35	12	2	2	1	2	42	17
Cumberland	0	0	0	1	0	8	1	0
Frederick	0	0	0	----------	0	0	0	0
District of Columbia:								
Washington	12	6	8	----------	0	6	0	4
Virginia:								
Lynchburg	2	0	0	----------	0	0	0	0
Norfolk	0	0	0	----------	0	3	0	3
Richmond	0	1	0	----------	0	0	0	0
Roanoke	2	0	0	----------	0	0	0	0
West Virginia:								
Charleston	1	0	2	----------	0	2	0	0
Huntington	0	----------	0	----------	0	8	0	----------
Wheeling	5	0	0	----------	0	32	0	1

City reports for week ended July 2, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
SOUTH ATLANTIC—continued								
North Carolina:								
Raleigh	0	0	0	----------	0	0	0	0
Wilmington	1	0	0	----------	0	0	0	0
Winston-Salem	0	0	0	----------	0	19	0	1
South Carolina:								
Charleston	0	0	0	----------	0	6	0	0
Columbia	----------	0	----------	----------	----------	----------	----------	----------
Greenville	0	0	0	----------	0	3	0	0
Georgia:								
Atlanta	1	2	2	4	0	1	2	2
Brunswick	0	0	0	----------	0	0	0	0
Savannah	0	0	0	----------	0	1	0	0
Florida:								
Miami	0	1	0	----------	0	2	0	0
Tampa	0	1	0	----------	0	0	0	0
EAST SOUTH CENTRAL								
Kentucky:								
Covington	0	0	0	----------	0	0	0	1
Lexington	5	----------	0	----------	0	0	0	0
Tennessee:								
Memphis	3	1	0	----------	0	----------	0	1
Nashville	0	0	0	----------	0	0	0	2
Alabama:								
Birmingham	0	0	1	----------	1	0	2	0
Mobile	0	0	1	----------	1	0	0	1
Montgomery	0	0	0	3	----------	0	1	----------
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith	0	0	0	----------	----------	0	0	----------
Little Rock	0	0	0	----------	0	0	1	2
Louisiana:								
New Orleans	0	6	7	2	0	3	0	13
Shreveport	1	0	1	----------	0	2	2	2
Texas								
Dallas	0	3	10	----------	0	2	0	1
Fort Worth	0	1	2	----------	0	0	0	0
Galveston	0	0	0	----------	0	0	0	1
Houston	0	2	7	----------	0	9	0	4
San Antonio	0	2	2	----------	0	0	0	4
MOUNTAIN								
Montana:								
Billings	0	0	0	----------	0	0	0	0
Great Falls	0	0	0	----------	0	6	0	1
Helena	2	0	0	----------	0	0	2	0
Missoula	0	0	0	----------	0	0	0	0
Idaho:								
Boise	0	0	0	----------	0	2	0	1
Colorado:								
Denver	23	5	3	----------	0	41	14	5
Pueblo	0	0	0	----------	0	0	0	0
New Mexico:								
Albuquerque	0	0	1	----------	0	2	0	0
Arizona:								
Phoenix	0	0	0	----------	0	0	0	1
Utah:								
Salt Lake City	40	2	0	----------	0	1	17	0
Nevada:								
Reno	0	0	0	----------	0	0	0	0
PACIFIC								
Washington:								
Seattle	11	1	0	----------	----------	5	2	----------
Spokane	15	2	0	----------	----------	20	0	----------
Tacoma	2	2	0	----------	0	31	1	1
Oregon:								
Portland	3	4	2	2	0	28	1	2
Salem	0	0	0	----------	0	0	1	0
California:								
Los Angeles	35	23	16	22	0	12	19	10
Sacramento	11	1	0	----------	0	2	2	1
San Francisco	6	8	2	1	1	40	2	7

City reports for week ended July 2, 1932—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND											
Maine:											
Portland	1	1	0	0	0	0	1	1	0	8	15
New Hampshire:											
Concord	1	5	0	0	0	0	0	0	0	0	5
Manchester	0	0	0	0	0	1	0	0	0	0	34
Nashua	0	0	0	0	0	0	0	0	0	0	--------
Vermont:											
Barre	0	0	0	0	0	0	0	0	0	0	--------
Massachusetts:											
Boston	42	67	0	0	0	7	1	0	0	41	175
Fall River	2	8	0	0	0	1	0	0	0	0	22
Springfield	3	3	0	0	0	0	0	0	0	2	23
Worcester	6	11	0	0	0	3	0	0	0	13	50
Rhode Island:											
Pawtucket	0	0	0	0	0	0	0	0	0	0	--------
Providence	6	15	0	0	0	2	0	0	0	37	42
Connecticut:											
Bridgeport	3	3	0	0	0	2	0	0	0	11	30
Hartford	2	3	0	0	0	0	0	1	0	1	35
New Haven	1	1	0	0	0	0	0	0	0	33	42
MIDDLE ATLANTIC											
New York:											
Buffalo	14	23	0	0	0	7	0	0	0	22	114
New York	113	177	0	0	0	99	12	4	0	128	1,285
Rochester	7	20	0	0	0	3	0	1	0	4	84
Syracuse	4	6	0	0	0	0	0	0	0	78	47
New Jersey:											
Camden	2	16	0	0	0	1	0	0	0	1	34
Newark	12	24	0	0	0	6	1	0	0	29	85
Trenton	1	4	0	0	0	8	0	0	0	0	45
Pennsylvania:											
Philadelphia	50	72	0	0	0	30	1	4	0	67	455
Pittsburgh	21	33	0	0	0	7	1	0	0	27	148
Reading	2	4	0	0	0	0	0	0	0	18	26
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	10	16	1	1	0	10	1	2	1	8	110
Cleveland	21	31	1	0	0	18	0	0	0	69	184
Columbus	4	6	0	0	0	2	0	3	0	28	61
Toledo	9	2	0	0	0	5	1	1	0	49	50
Indiana:											
Fort Wayne	1	--------	1	--------	--------	--------	0	--------	--------	--------	--------
Indianapolis	6	8	4	0	0	0	0	1	0	21	--------
South Bend	1	1	0	0	0	0	0	0	0	3	9
Terre Haute	1	0	0	0	0	0	0	1	0	1	17
Illinois:											
Chicago	78	97	1	0	0	45	2	7	1	88	578
Springfield	1	0	0	0	0	0	0	1	0	8	15
Michigan:											
Detroit	64	108	1	0	0	24	2	1	0	114	244
Flint	8	7	1	0	0	2	1	0	0	6	22
Grand Rapids	6	1	0	0	0	0	0	1	0	21	27
Wisconsin:											
Kenosha	1	0	0	1	0	0	0	0	0	4	4
Madison	1	0	0	0	--------	--------	0	0	--------	16	--------
Milwaukee	15	8	0	0	0	8	0	0	0	63	94
Racine	1	0	0	0	0	1	0	0	0	1	8
Superior	2	0	0	0	0	1	0	0	0	3	10
WEST NORTH CENTRAL											
Minnesota:											
Duluth	5	1	0	0	0	2	0	0	0	0	16
Minneapolis	17	8	0	0	0	2	0	0	0	2	79
St. Paul	10	4	0	0	0	2	0	0	0	41	46
Iowa:											
Des Moines	2	0	3	0	--------	--------	0	0	--------	0	26
Sioux City	0	0	0	0	--------	--------	0	0	--------	8	--------
Waterloo	0	0	0	0	--------	--------	0	0	--------	0	--------

City reports for week ended July 2, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL—continued											
Missouri:											
Kansas City	5	3	0	0	0	4	1	1	0	12	96
St. Joseph	0	0	0	0	0	1	0	2	0	6	18
St. Louis	19	13	1	0	0	9	3	0	0	10	197
North Dakota:											
Fargo	2	1	0	0	0	1	0	0	0	1	14
Grand Forks	0	0	0	0			0	0		0	
South Dakota:											
Aberdeen	0	1	0	0			0	0		0	
Nebraska:											
Omaha	1	2	2	1	0	1	0	0	0	1	32
Kansas:											
Topeka	0	0	0	0	0	0	1	0	0	46	12
Wichita	0	1	0	0	0	1	0	0	0	3	35
SOUTH ATLANTIC											
Delaware:											
Wilmington	2	4	0	0	0	0	0	0	0	5	24
Maryland:											
Baltimore	18	12	0	0	0	14	2	2	0	64	186
Cumberland	0	0	0	0	0	1	0	0	0	2	14
Frederick	0	0	0	0	0	1	0	0	0	0	1
District of Col.:											
Washington	10	5	0	0	0	5	0	1	1	14	141
Virginia:											
Lynchburg	0	0	0	0	0	0	0	1	0	27	11
Norfolk	0	0	0	0	0	2	0	1	0	5	39
Richmond	1	2	0	0	0	3	0	4	0	0	48
Roanoke	0	1	0	0	0	0	0	0	0	0	18
West Virginia:											
Charleston	1	0	0	0	0	0	0	0	0	0	13
Huntington		0		0				1		0	
Wheeling	0	0	0	0	0	0	0	1	0	6	16
North Carolina:											
Raleigh	0	1	0	0	0	1	0	1	0	7	18
Wilmington	0	0	0	0	0	0	0	0	0	1	9
Winston-Salem	0	4	0	0	0	1	1	0	0	19	22
South Carolina:											
Charleston	0	0	0	0	0	1	1	3	0	0	27
Columbia	0		0				1				
Greenville		0	0	0	0	0		0	0	3	
Georgia:											
Atlanta	3	0	1	0	0	2	3	7	0	10	75
Brunswick	0	0	0	0	0	0	0	0	0	1	3
Savannah	0	0	0	0	0	4	1	1	0	0	37
Florida:											
Miami	0	1	0	0	0	1	1	3	1	0	22
Tampa	0	0	0	0	0	2	0	0	0	0	26
EAST SOUTH CENTRAL											
Kentucky:											
Covington	1	0	0	0	0	1	0	0	0	0	15
Lexington		0		0	0	0		0	0	2	12
Tennessee:											
Memphis	2	1	0	0	0	8	5	5	2	10	84
Nashville	1	1	0	0	0	0	2	2	0	0	39
Alabama:											
Birmingham	1	2	0	0	0	7	1	5	0	9	50
Mobile	0	1	0	1	0	1	1	1	0	1	23
Montgomery	0	0	0	0			1	0		4	
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	0	0	0			0	0		4	
Little Rock	0	1	0	0	0	0	1	0	0	0	2
Louisiana:											
New Orleans	3	3	0	0	0	17	3	7	1	6	157
Shreveport	0	1	0	0	0	0	0	1	0	1	26

City reports for week ended July 2, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST SOUTH CENTRAL—contd.											
Texas:											
Dallas	2	1	1	0	0	8	2	8	1	6	62
Fort Worth	1	8	1	0	0	0	1	0	0	0	22
Galveston	0	0	0	0	0	1	0	0	0	0	14
Houston	2	5	1	0	0	7	1	0	1	0	64
San Antonio	0	0	1	1	0	2	1	1	0	0	50
MOUNTAIN											
Montana:											
Billings	0	0	0	0	0	0	0	0	0	0	5
Great Falls	0	0	0	0	0	0	0	0	0	0	6
Helena	0	0	0	0	0	0	0	0	0	0	7
Missoula	0	0	0	0	0	0	0	1	0	0	7
Idaho:											
Boise	0	0	0	2	0	1	0	0	0	0	5
Colorado:											
Denver	6	4	0	0	0	8	0	0	0	25	75
Pueblo	1	0	0	0	0	0	1	0	0	0	11
New Mexico:											
Albuquerque	0	0	0	0	0	2	0	0	0	0	7
Arizona:											
Phoenix	0	0	0	0	0	4	0	0	0	0	----
Utah:											
Salt Lake City	8	2	0	0	0	1	0	0	0	7	31
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	2
PACIFIC											
Washington:											
Seattle	4	3	1	2	----	----	1	0	----	4	----
Spokane	2	0	3	0	----	----	0	0	----	6	----
Tacoma	1	5	1	2	0	1	0	1	0	4	23
Oregon:											
Portland	3	2	6	1	0	1	0	0	0	0	46
Salem	1	0	1	0	0	0	0	0	0	1	----
California											
Los Angeles	19	18	3	1	0	16	3	1	0	65	209
Sacramento	2	0	0	0	0	3	1	0	1	5	22
San Francisco	10	2	0	0	0	6	0	0	0	12	143

Division, State, and city	Meningococcus meningitis: Cases	Meningococcus meningitis: Deaths	Lethargic encephalitis: Cases	Lethargic encephalitis: Deaths	Pellagra: Cases	Pellagra: Deaths	Poliomyelitis (infantile paralysis): Cases estimated expectancy	Poliomyelitis (infantile paralysis): Cases	Poliomyelitis (infantile paralysis): Deaths
NEW ENGLAND									
Massachusetts:									
Boston	1	0	0	0	0	0	0	0	0
Connecticut:									
Bridgeport	0	1	0	0	0	0	0	0	0
Hartford	0	0	0	1	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York	4	2	1	1	0	0	3	1	0
Pennsylvania:									
Philadelphia	2	1	0	0	0	0	0	2	0
Pittsburgh	1	0	0	0	0	0	0	0	0

City reports for week ended July 2, 1932—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	1	0	0	0	0	0	0	0	0
Indiana:									
Indianapolis	1	0	0	0	0	0	0	0	0
Illinois:									
Springfield	0	0	0	0	0	0	0	1	0
Michigan:									
Detroit	0	2	2	2	0	0	0	1	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis	0	0	4	0	0	0	0	0	0
Missouri:									
St. Louis	0	0	1	0	0	0	0	0	0
North Dakota:									
Fargo	0	0	0	0	0	0	0	1	0
SOUTH ATLANTIC									
Maryland:									
Baltimore	0	0	0	0	2	1	0	0	0
District of Columbia:									
Washington	0	0	1	2	0	0	0	0	0
North Carolina:									
Winston-Salem	0	0	1	0	3	1	0	0	0
South Carolina:									
Charleston	0	0	0	0	6	1	0	2	0
Georgia:									
Atlanta	0	1	0	0	0	1	0	0	0
Brunswick	0	0	0	0	1	1	0	0	0
Savannah	0	0	0	0	1	0	0	0	0
Florida:[1]									
Miami	0	0	0	0	2	0	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis	0	0	0	0	1	0	0	0	0
Alabama:									
Birmingham	1	0	0	1	3	1	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans	1	0	1	0	2	3	1	0	0
Texas:									
Dallas	0	0	0	0	0	0	1	1	0
Houston[1]	0	1	0	0	0	0	0	1	0
MOUNTAIN									
Utah:									
Salt Lake City	1	1	0	0	0	0	0	0	0
PACIFIC									
California:									
San Francisco	0	0	0	0	1	0	0	1	0

[1] Typhus fever, 2 cases: 1 case at Tampa, Fla., and 1 case at Houston, Tex.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended July 2, 1932, compared with those for a like period ended July 4, 1931. The population figures used in computing the rates are estimated mid-year populations for 1931 and 1932, respectively, derived from the 1930 census. The 98 cities reporting cases have an estimated aggregate population of more than 34,000,000. The 91 cities reporting deaths have more than 32,400,000 estimated population.

Summary of weekly reports from cities, May 29 to July 2, 1932—Annual rates per 100,000 population, compared with rates for the corresponding period of 1931 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931	June 18, 1932	June 20, 1931	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931
98 cities	[2] 45	67	[3] 42	54	47	66	[4] 36	54	[5] 44	[6] 47
New England	46	46	84	41	62	41	[7] 31	67	204	96
Middle Atlantic	46	74	31	55	50	65	38	47	27	53
East North Central	35	75	[8] 34	64	34	89	30	72	[9] 24	49
West North Central	57	55	59	61	64	52	[10] 63	42	59	33
South Atlantic	27	40	27	49	22	44	27	45	[11] 28	[11] 12
East South Central	[2] 31	12	[2] 6	18	6	6	[2] 25	23	12	12
West South Central	59	68	89	27	76	85	[12] 73	68	89	27
Mountain	26	191	43	35	26	26	17	9	26	[13] 9
Pacific	80	49	59	53	67	71	[14] 11	51	34	51

MEASLES CASE RATES

	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931	June 18, 1932	June 20, 1931	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931
98 cities	[2] 826	1,096	[3] 855	876	617	719	[4] 540	568	[5] 372	[6] 384
New England	1,124	933	1,177	601	1,059	635	[7] 1,001	438	630	402
Middle Atlantic	413	1,102	525	839	363	664	376	511	345	284
East North Central	1,952	1,445	[8] 1,868	1,303	1,298	1,159	972	920	[9] 650	768
West North Central	172	817	176	448	136	331	[10] 109	297	57	140
South Atlantic	333	1,476	512	1,104	392	768	294	591	[11] 154	[11] 311
East South Central	[2] 187	1,151	[2] 25	828	35	852	[2] 12	593	0	352
West South Central	49	254	73	149	59	88	[12] 101	47	53	24
Mountain	957	870	405	705	612	609	543	479	431	[13] 215
Pacific	522	512	611	580	394	302	[14] 613	363	227	149

SCARLET FEVER CASE RATES

	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931	June 18, 1932	June 20, 1931	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931
98 cities	[2] 302	310	[3] 278	269	252	222	[4] 176	168	[5] 137	[6] 105
New England	546	414	410	291	417	272	[7] 343	238	280	188
Middle Atlantic	418	355	377	318	321	280	211	195	168	135
East North Central	338	422	[8] 354	386	344	310	208	240	[9] 168	122
West North Central	135	258	102	168	44	132	[10] 63	78	63	31
South Atlantic	147	198	120	123	102	77	90	93	[11] 58	[11] 55
East South Central	[2] 6	153	[2] 37	170	12	94	[2] 19	65	29	47
West South Central	43	41	23	88	13	30	[12] 56	30	36	41
Mountain	103	104	190	96	164	78	155	96	52	[13] 36
Pacific	97	86	60	80	126	57	[14] 42	57	53	47

SMALLPOX CASE RATES

	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931	June 18, 1932	June 20, 1931	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931
98 cities	[2] 5	14	[3] 3	10	3	7	[4] 2	8	[5] 2	[6] 6
New England	0	0	0	0	0	5	[7] 0	0	0	0
Middle Atlantic	0	0	0	1	0	0	0	1	0	0
East North Central	2	16	[8] 1	12	1	5	1	5	[9] 1	8
West North Central	28	42	19	36	9	29	[10] 6	19	2	10
South Atlantic	0	18	0	0	0	14	0	12	[11] 0	[11] 0
East South Central	[2] 31	18	[2] 6	23	12	12	[2] 12	18	6	23
West South Central	7	41	3	24	0	20	[12] 0	30	3	24
Mountain	0	26	0	17	0	0	0	70	17	[13] 0
Pacific	17	33	11	25	17	16	[14] 23	6	10	14

See footnotes at end of table.

Summary of weekly reports from cities, May 29 to July 2, 1932—Annual rates per 100,000 population, compared with rates for the corresponding period of 1931 [1]—Continued

TYPHOID FEVER CASE RATES

	Week ended—									
	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931	June 17, 1932	June 20, 1931	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931
98 cities	[2] 7	6	[3] 7	7	10	9	[4] 10	10	[5] 13	[6] 10
New England	5	2	7	0	5	10	[7] 18	0	5	10
Middle Atlantic	3	5	4	7	7	12	4	4	4	5
East North Central	5	1	[8] 1	4	4	4	5	6	[9] 10	3
West North Central	2	10	6	4	6	6	[10] 12	10	6	10
South Atlantic	16	20	27	14	29	14	37	16	[11] 42	[11] 10
East South Central	[2] 31	18	[2] 12	18	35	12	[2] 44	35	75	41
West South Central	10	10	10	24	16	14	[12] 21	54	56	71
Mountain	9	17	0	9	0	0	9	52	9	[13] 36
Pacific	17	4	15	12	15	10	[14] 8	14	4	4

INFLUENZA DEATH RATES

	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931	June 17, 1932	June 20, 1931	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931
91 cities	[2] 5	6	[3] 4	4	5	7	[4] 6	4	[5] 3	[6] 3
New England	5	2	0	0	5	7	[7] 3	2	0	0
Middle Atlantic	3	5	7	4	5	8	7	2	4	1
East North Central	3	2	[8] 0	4	4	5	3	6	[9] 4	1
West North Central	6	6	3	6	6	6	[10] 9	0	0	9
South Atlantic	14	14	12	6	8	4	6	6	[11] 2	[11] 4
East South Central	[2] 14	38	[2] 7	13	0	0	[2] 7	6	13	19
West South Central	10	10	0	3	13	14	[12] 14	7	0	10
Mountain	0	0	0	0	0	9	9	0	0	[13] 9
Pacific	2	7	2	5	2	5	[14] 6	2	2	5

PNEUMONIA DEATH RATES

	June 4, 1932	June 6, 1931	June 11, 1932	June 13, 1931	June 17, 1932	June 20, 1931	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931
91 cities	[2] 77	86	[3] 73	75	62	70	[4] 57	67	[5] 53	[6] 64
New England	91	120	89	60	79	65	[7] 65	60	62	36
Middle Atlantic	83	102	92	88	75	72	61	76	61	67
East North Central	60	50	[8] 46	60	42	60	43	51	[9] 34	61
West North Central	67	138	70	71	52	106	[10] 53	38	64	77
South Atlantic	98	77	96	83	76	89	73	103	[11] 52	[11] 67
East South Central	[2] 95	76	[2] 27	146	13	83	[2] 55	140	31	83
West South Central	84	86	94	79	81	76	[12] 61	90	91	90
Mountain	129	87	52	70	52	78	60	35	60	[13] 72
Pacific	53	48	44	43	53	34	[14] 54	41	44	46

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1932 and 1931, respectively.
[2] Covington, Ky., not included.
[3] Springfield, Ill., and Covington, Ky., not included.
[4] Hartford, Conn., Wichita, Kans., Covington, Ky., Little Rock, Ark., and Los Angeles, Calif., not included.
[5] Fort Wayne, Ind., and Columbia, S. C., not included.
[6] Columbia, S. C., and Billings, Mont., not included.
[7] Hartford, Conn., not included.
[8] Springfield, Ill., not included.
[9] Fort Wayne, Ind., not included.
[10] Wichita, Kans., not included.
[11] Columbia, S. C., not included.
[12] Little Rock, Ark., not included.
[13] Billings, Mont., not included.
[14] Los Angeles, Calif., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Two weeks ended June 25, 1932.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases for the two weeks ended June 25, 1932, as shown in the following table. Provinces not given in the table did not report any case of any disease included in the table.

Province	Cerebro-spinal fever	Influenza	Lethargic encephalitis	Poliomyelitis	Smallpox	Typhoid fever
Nova Scotia		10				
New Brunswick						6
Quebec	1			2	1	153
Ontario			1	1		19
Saskatchewan					2	3
Alberta				3		2
British Columbia					1	4
Total	1	10	1	6	4	187

Quebec Province—Communicable diseases—Week ended June 25, 1932.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended June 25, 1932, as follows:

Disease	Cases	Disease	Cases
Chicken pox	49	Scarlet fever	35
Diphtheria	19	Smallpox	1
Erysipelas	5	Tuberculosis	64
German measles	6	Typhoid fever	118
Measles	35	Whooping cough	46
Poliomyelitis	2		

JAMAICA

Communicable diseases—Four weeks ended June 18, 1932.—During the four weeks ended June 18, 1932, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island of Jamaica, outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Chicken pox	10	32	Leprosy		3
Diphtheria	1		Puerperal fever		4
Dysentery	2	5	Tuberculosis	43	80
Erysipelas		1	Typhoid fever	14	64

JAPAN

Cholera—Tokyo.—Three cases of cholera have been reported in Tokyo, Japan, and its suburbs. The first case was reported June 10, the second, June 15, and the third, June 17. Two of the cases originated in Honjo, a ward of Tokyo, and one case in Kamata, a suburb of Tokyo, located between that city and Yokohama. It is believed that the disease was imported by Japanese troops returning from China. Strict precautionary measures have been taken, including quarantine of suspected districts and compulsory inoculation of contacts and food handlers.

MEXICO

Tampico—Communicable diseases—June, 1932.—During the month of June, 1932, certain communicable diseases were reported in Tampico, Mexico, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria	2	1	Measles	5	
Enteritis, various	69	71	Paratyphoid fever	6	7
Influenza	40		Tuberculosis	41	33
Leprosy	3		Typhoid fever	4	1
Malaria	705	15	Whooping cough	40	2

PANAMA CANAL ZONE

Communicable diseases—May, 1932.—During the month of May, 1932, certain communicable diseases, including imported cases, were reported in the Panama Canal Zone and terminal cities as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Chicken pox	25		Measles	19	1
Diphtheria	1		Pneumonia		27
Dysentery (amebic)	2		Scarlet fever	1	
Leprosy	1		Tuberculosis		34
Malaria	145	2	Whooping cough	6	

PUERTO RICO

San Juan—Communicable diseases—Four weeks ended June 18, 1932.—During the four weeks ended June 18, 1932, cases of certain communicable diseases were reported in San Juan, Puerto Rico as follows:

Disease	Cases	Disease	Cases
Chicken pox	1	Malaria	18
Diphtheria	5	Measles	23
Dysentery (amebic)	3	Vincent's angina	1
Leprosy	1	Whooping cough	6

TRINIDAD

Port of Spain—Vital statistics—May, 1931, 1932.—During the months of May, 1931 and 1932, certain vital statistics were reported in Port of Spain, Trinidad, as follows:

	May, 1931	May, 1932		May, 1931	May, 1932
Number of births	160	158	Death rate per 1,000 population	17 7	14.4
Birth rate per 1,000 population	27.4	26 4	Deaths under 1 year	12	16
Number of deaths	103	86	Deaths under 1 year per 1,000 births	75	101

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place		Jan 10–Feb 6, 1932	Feb 7–Mar. 5, 1932	Mar 6–Apr 2, 1932	Week ended— April, 1932				May, 1932				June, 1932				July, 1932	
					9	16	23	30	7	14	21	28	4	11	18	25	2	9
China:																		
Amoy	C														3		15	
	D														2		11	
Canton	C			2			1				1	1	2	49	330			
	D										1		1	22	152			
Hankow	C	1	1				3			8					6			
	D						1			3								
Hong Kong	C															9	45	33
	D															9	18	33
Kwantung	C																P	
Nanking	C														123			
	D														45			
Newchwang	C															1	5	
	D																4	
Shanghai	C								11	11	8	40	92	90	130	276		
	D									1	1	1	10	9	23	11		
Swatow	C										1			1		49		
	D															3		
Tientsin	C													3	16			
	D														5			
India	C	10,001	5,826	4,952	1,519	1,432	1,709	1,635	1,497	1,126								
	D	5,267	2,788	2,358	780	719	863	832	731	592								
Bombay	C		1															
	D		1															
Calcutta	C	133	1,118	162	73	114	53	139	174	228	141	106	79	63	106			
	D	70	54	73	25	56	25	42	58	125	79	59	38	27	51			
Chittagong	C	6	1	2														
	D	1	22	1														
Madras	C		3	6														
	D		3	3														
Rangoon	C										1				1			
	D										1				1			

India (French):																		
Chandernagor	C								11		3	5						
	D								5		2	5						
Karikal	C	35	2															
	D	17																
Pondicherry Territory	C	15		2														
	D	15		2														
Pondicherry	C			1														
	D			1														
Indo-China (see also table below):																		
Pnompenh	C	2			1						1		1		1	1		
	D	2			1						1		1		1	1		
Saigon and Cholon	C	1	1	1			1	1	1	1	2	2	2	2	1	1		
	D						1	1	1	1	2	2	1	1	1	1		
Japan:																		
Kobe	C													1				
Tokyo	C													1	2			
Persia: Kouh Bezman	C							[1] 1										
Philippine Islands. Capiz Province	C	22	23															
	D	20	20															
Siam	C	1		1	1	1					8		8					
	D	1		2		1					7		4					
Bangkok	C	1		2	1													
	D	1		1														
On vessels:																		
S. S. Angora at Rangoon from Calcutta	C			1														
S. S. Narbada at Rangoon from Calcutta	C				1													
	D				1													
S. S. Shanghai Maru at Kobe from Shanghai	C												1					
S. S. President Wilson enroute to Manila from Honolulu via Shanghai and Hong Kong	C															2		
	D															1		

Place		November, 1931	December, 1931	January, 1932	February, 1932			March, 1932			April, 1932			May, 1932		
					1–10	11–20	21–29	1–10	11–20	21–31	1–10	11–20	21–30	1–10	11–20	21–31
Indo-China (French) (see also table above):																
Annam [2]	C				4									93	20	21
	D				4									7	2	6
Cambodia [2]	C	4	3	12	3	2		6	1	3	4	1	20	12	6	
	D		2	6	2	2		3	1	1	3		8	2	1	
Cochin-China [2]	C	6	14	5	7		P	3	2	4	3	6	18	11	30	
	D	4	7	4	5			2	1	2	2	3	13	8	21	
Laos [2]	C										7					
	D										3					

[1] A suspected case.

[2] Reports incomplete.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE[1]

[C indicates cases; D, deaths; P, present]

Place		Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Week ended— April, 1932: 9	16	23	30	May, 1932: 7	14	21	28	June, 1932: 4	11	18	25	July 2, 1932
Argentina:																	
Cordoba Providence[2]	C	1				2											
San Luis Province	C																
Belgian Congo	C											2		1	1		
British East Africa (see also table below)																	
Tanganyika	C	10		2													
	D	10															
Uganda	C	31	8	4	1	7	13	18	11	9	6	11					
	D	26	6	4	1	6	11	18	7	8	6	10					
Canary Islands: Palma Islands—Los Lanos	C	8								1							
	D	8															
Ceylon: Colombo	C	5	4	3		1		1	1	3		2	5	3	3	2	
	D	3	3	3		1		1	1	1		2	5	3	3	2	
Plague-infected rats		1		1				1	5	2	2		4				
China:																	
Kwang Chow Wan	C			8													
	D			8													
Shensi Province	C		P														
Dutch East Indies:																	
Java—																	
Surabaya	C	2															
	D	2															
Tegal	C		1														
Java and Madura	D	459	459	362	98	75	95	97	70	62							
West Java	C	201	141	213	68	52	64	55			41						
	D	200	139	213	66	52	63	54			41						
Ecuador (see table below).																	
Egypt:																	
Alexandria	C	2		2					1	2	1	8	1	2		1	3
	D									2		1	2	1	1		1
Assiout	C	1															
	D	1															
Beheira	C	11						1	2				1	1			
	D	2						1	3				1				
Beni Suef	C						4	33	2								
	D							8	3								

Gharbieh	C												2		1		
	D													1			
Minieh	C	1		3													
	D	1		3													
Tanta	C	1															
	D	1															
Hawaii Territory:																	
Hawaii Island—																	
Hamakua—																	
Honokaa	C		2														
	D		2														
Plague-infected rats			1														
Kukaiau—Plague-infected rats												1	1				
Maui Island—																	
Makawao	C		1														
	D		1														
Plague-infected rats			4														
India	C	7,892	8,593	9,724	1,804	1,400	1,279	714	684	474							
	D	3,971	4,970	5,543	1,065	852	859	443	505	360							
Bassein	C	1	4	9	4			1	2					2		1	
	D		4	7	3		1		2					2			
Bombay	C		5	8	6	3	5	5	2	2	1		1				
	D		5	6	5	3	5	2	1	2	1		1				
Plague-infected rats		57	109	117	30	23	35	34	25	21	1	11	3				
Madras	C						[3] 1										
	D						1										
Madras Presidency	C	2,951	70	158	42	16	11		18	5	6						
	D	155	47	86	14	6	4		4	4	1						
Rangoon	C		9	4	4	1	1	1				1					
	D	1	8	4	4	1		1									
Plague-infected rats			2	8	4			1		2		1		1			
Indo-China (see table below).																	
Iraq: Baghdad	C	5	3													1	
	D		1														
Peru (see table below).																	
Senegal (see table below).																	
Siam	C	1	1	7													
	D	1		3													
Southwest Africa.[4]																	
Syria: Beirut	C				1			1							1		2
Union of South Africa: Orange Free State	C	P	P	P													
	D			10													
United States: California—Los Angeles—Plague-infected rats					1				2					1			
On vessel:																	
Steamship Columbia, at Naples, from Barcelona—Plague-infected rats																1	

[1] Including plague in the United States and its possessions.
[2] 10 cases of bubonic plague were reported in Cordoba Province, Argentina, in January, 1932. They were distant from railroad and 500 kilometers from ports.
[3] An imported case.
[4] 80 cases of plague with 15 deaths were reported in Ovamboland, Southwest Africa, up to Apr. 30, 1932. Antiplague measures have been taken.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place		January, 1932	February, 1932	March, 1932	April, 1932	May, 1932	June, 1932
British East Africa (see also table above):							
Kenya	C	17	33	22	18	11	
Ecuador:							
Province—							
Chimborazo	C	8	13		6	10	2
Loja	C	11					
Indo-China	C	17	P	P	9	2	
	D	9			6	1	
Madagascar:							
Province—							
Ambatolampy	C	23	40	25			
	D	23	38	25			
Ambositra	C	166	90	81	19		
	D	152	81	67	17		
Antisirabe	C	53	45	54	21		
	D	51	45	53	21		
Meavatanana	C			4			
	D			4			
Miarinarivo	C	15	13	9	6		
	D	15	12	9	6		
Moramanga	C	13	9	3			
	D	13	9	3			
Taranarive	C	203	148	71	42		
	D	196	140	70	40		

Place		January, 1932	February, 1932	March, 1932	April, 1932	May, 1932	June, 1932
Peru	C	11	2				
	D	8	2				
Department—							
Canete	C	3					
Lambayeque	C						2
Libertad	C	1			28		
Otuzco	C					1	
Lima	C	6		1			
Lima	C		1	1	1	1	
	D		1				
Piura	C	1					
Senegal							
Dakar [5]	C			10			
	D			5			
Louga [5]	C					3	
	D					2	
Rufisque [5]	C					3	6
	D					3	6
Yombel [5]	C			9			
	D			5			

[5] Reports incomplete.

SMALLPOX

Place		Dec. 13, 1931–Jan. 9, 1932	Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar 6–Apr. 2, 1932	Week ended— April, 1932				May, 1932				June, 1932			
						9	16	23	30	7	14	21	28	4	11	18	25
Aden	C		2		1												
Algeria:																	
Algiers	C	1													1	1	
Constantine Department	C						1		1	1		1					
Philippeville	C								1								
Southern Territories	C			2													
Brazil:																	
Porto Alegre (alastrim)	C	35	34	19	5	2	1	2	3	2							
	D	2			1												
Rio de Janeiro	C	1															
Santos	C		2														
British East Africa. Tanganyika	C	55	24	5	P					79	11						
	D	4	7	2													
British South Africa:																	
Northern Rhodesia	C	7	5														
Southern Rhodesia	C	1			4	1	6										
Canada:																	
Alberta	C	11															
British Columbia	C	5	25	17	9												1
	D		4	9	3												
Manitoba	C		10				1										
Nova Scotia	C			1													
Ontario	C	14	6	21	4		2	4		1			23				
North Bay	C		1														
Quebec	C	3	1	8													1
Saskatchewan	C	11	35	30	6		1	5	2	3	1	3	6		1		2
Chile: Tocopilla	C	2															
China:																	
Amoy	C	218	183	121	45	7	5	4	1	3		2	3				
	D	79	91	44	25	4	3	3	1	2		2	2				
Canton	C	18	27	44	79	24	18	22	17	19	9	5	9	1	3		
	D			1	7			1		1							
Foochow	C	P	P	P	P		P		P		P		P		P		
Hankow	C	47	59	4	5	1		1	1	1	1	3					
	D	12	5	1													
Hong Kong	C	1	11	51	45	12	13	21	9	7	9	7	1	4	5	2	
	D		6	23	28	2	6	6	6	7	6	2	2	4	6	1	
Manchuria—Dairen	C		1	1	16	7		1		1		1					
Shanghai	C	155	163	167	102	22	24	22	22	16	6	5	6	3	3		
	D	41	62	67	45	7	10	8	10	6	5		2	1	2		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Dec. 13, 1931–Jan. 9, 1932	Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Week ended— April, 1932 9	16	23	30	May, 1932 7	14	21	28	June, 1932 4	11	18	25
China—Continued.																	
Swatow	C	2		1													
Tientsin	C		1	2	8	1	1			1				2			
	D			1	1												
Chosen (see table below).																	
Colombia: Cali	C	1															
Dahomey	C				6				2	2					15		
	D				1												
Dutch East Indies: Batavia	C	1	1														
	D		1														
Egypt:																	
Alexandria	C				1						1	1				1	
Cairo	C		1														
Suez	C			2	20	1	1	2		1							
	D				3												
Finland	C												1				
France (see table below).																	
Germany: Aix-la-Chapelle	C		1														
Gold Coast (see table below).																	
Great Britain:																	
England and Wales	C	198	227	258	273	70	87	96	62	68	76	56	68	49	36	25	30
London	C	100	100	136	129	30	25	48	34	41	39	25	29	49	18	15	18
London and Great Towns	C	152	188	203	236	57	63	86	51	59	60	47	52	37	31	37	23
Greece (see table below).																	
Guatemala (see table below).																	
Honduras.[1]																	
Ceiba	D			1	2	1			1								
Puerto Castilla	C		1	4					4			1	P			2	
Tegucigalpa	C			5													
Tela	C				2	2							1				
Trujillo	C			35													
	D			5													
India	C	2,361	4,576	9,709	12,040	4,093	3,431	3,063	3,120	4,230	3,388						
	D	464	970	1,896	2,234	783	705	665	742	996	796						
Bassein	C		3			1											
	D					1											

Bombay	C	3	6	23	27	7	7	8	3	10	12	2	12	7	4		
	D	2	2	10	12	2	3	5		2	4	1	5	4	2		
Calcutta	C	7	27	102	159	38	19	40	36	17	35	22	19	15	16		
	D	3	15	54	115	30	11	22	36	12	29	16	10	17	14		
Chittagong	C				2						2						
	D				1						1						
Cochin	C		1	9	3	1											
Karachi	C	3	18	23	19	6	4	10	9	4	5	3	4	7	5	3	
	D		6	8	8	2		2	5		2	1	3	1	1	1	
Madras	C	7	9	15	51	15	20	13	10	17	10	10	10	3	8		
	D	2	3	4	16	4	2	2	3	2	4	2	3		3		
Moulmein	C		4	4	7	1											
Negapatam	C			1	1							1	2				
	D		1									1					
Rangoon	C	39	147	418	606	116	71	32	41	18	26	13	9	6	10		
	D	10	40	127	179	32	28	12	16	9	11	6	2	4	4		
Tuticorin	C	6	28	36	14		3		2	4							
	D		2	8	9		1		2	5							
Viragapatam	C	2		3	2												
India (French).																	
Karikal	C	4	1	4	19	3	15	1	2	2	4	1	4				
	D	2	1	4	9	3	6	1	2	2	2	1	2				
Pondicherry Territory	C	22	32	20	29	3	10	6	3	3	5	28	11		4	2	
	D	22	27	20	26	2	8	6	3	3	5	28	11		4	2	
Indo-China (see also table below):																	
Pnompenh	C		1	2	1												
Saigon and Cholon	C	22	117	145	212	33	35	32	13	12	8	8	5	3	3	3	9
	D	24	92	85	174	30	32	27	12	11	7	7	5	3	3	2	9
Iraq:																	
Baghdad	C	15	10	4	20		5	10	12	4	7	10		14	9	3	1
	D	8	13	4	10		2	5	6	2	3	3		6	4	2	
Basra	C	1	2	2	11	1	1	1	1	1	1	4	2	2	4	2	
	D	2					1	2	1		1	1	1	1		1	
Ivory Coast (see table below).																	
Japan:																	
Kobe	C			1	2		1				1	7	2				
	D				1								1				
Nagasaki	C									1	4	4	4	1	1	1	
Osaka Prefecture [2]	C							3	90	34	48						
Osaka	C										1						
Taiwan	C		35	58	1			1									
Yokohama	C	1	2														
Mexico (see also table below):																	
Chihuahua	D			3	1	1						1			5		
Durango	D					1											
Jalisco (State)—Guadalajara	D	1	3		1			1	1		1	1		1	1		
Mexico City and surrounding territory	C	8	14	33	6	2	5	6	3	3	2	3	9	4	7		
	D			1				1	1		1						
Monterrey	C		1	8	1		1	1		1			1				
Saltillo	D											1	2	2			

[1] 590 cases of smallpox with 15 deaths were reported in Honduras from July, 1931, to Feb. 16, 1932.
[2] Two hundred and sixty-four cases of smallpox were reported in Osaka Prefecture, Japan, from Mar. 1 to May 28, 1932.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Dec. 13, 1931–Jan. 9, 1932	Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Week ended— April, 1932: 9	16	23	30	May, 1932: 7	14	21	28	June, 1932: 4	11	18	25
Mexico—Continued.																	
San Luis Potosi	D	2	5	2	3		1	1		1			1		1		
Torreon	C	2	6	2	2	1			2		1	1	1	1	1	1	
	D	2	2	3	2	1			2		3			1			1
Morocco (see table below).																	
Nigeria	C		217	46	750			82	34		939						
	D		120	2	111			6	13		316						
Palestine	C										1						
Poland	C	1									1			1			
Portugal:																	
Lisbon	C	108	98	50	38	5	11	4	6	10	5	8	6	2	5	6	
Oporto	C	2	3	14	14	10	6		5	3	5	8	8	4	9	8	2
Salvador	C			85	10												
Siam	C	13	1		2								1	8	1		
Sierra Leone [3]	D													4	1		
Straits Settlements	C	2	4	6	1												
	D		1		2												
Sudan (Anglo-Egyptian)	C	2	3	8	4		1		2						1	1	1
	D		1	1													
Sweden: Malmo	C		9														
Syria (see table below).																	
Tunisia: Tunis	C	1			1												
Turkey (see also table below): Istanbul	C			1			1				1						
Union of South Africa:																	
Cape Province	C	P				P	P	P	P	P	P	P	P				
Orange Free State	C						P	P	P								
Transvaal	C				P				P	P		P	P				
On vessels:																	
Brazilian ship Jaboatoa at New Orleans from Brazil	C	1															
S. S. Tacoma at Manila from Shanghai	C	1															
S. S. Cressington Court at Yokohama from Shanghai	C		1														
S. S. Bollington Court at Yokohama from Shanghai	C		1														
S. S. Victoria City at Brisbane from Shanghai	C		1														

S. S. Bellasco at Mobile from Habana, Cuba, and Hull, England	C	1													
S. S. Frauenfels at Suez from Calcutta	C				1										
S. S. Uwajima Maru at Osaka from Shanghai	C		1												
S. S. President Jackson at Yokohama from San Francisco via Honolulu	C	1													
S. S. Hong Kheng at Singapore from Amoy, via Swatow and Hong Kong	C		1												
S. S. Hai Ning and S. S. Solviken at Hong Kong	C		P												
S. S. Merkara at Aden from Colombo	C		2												
S. S. Tjisadane at Hong Kong from Shanghai and Amoy	C		P												
S. S. Peafung at Shanghai	C		1												
S. S. Rajula at Penang from Negapatam	C		P												
S. S. MacGillivary at Suez from Rangoon	C				[4] 1										
S. S. Tainui at Southampton from New Zealand	C				[4] 1										
S. S. Glenbank at Suez from Aden	C				1										
S. S. Tuscania at Suez from Bombay	C										1				

Place		December, 1931	January, 1932	February, 1932	March, 1932			April, 1932			May, 1932		
					1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20	21-31
Gold Coast	C		2										
	D		1										
Indo-China (see also table above)	C	509	309	660	230	275	222	175	247	146	211	78	
	D	93	143	231	109	113	120	80	97	64	46	37	
Ivory Coast	C												19
	D												1
Syria: Beirut	C		5					1		1			

Place		October, 1931	November, 1931	December, 1931	January, 1932	February, 1932	March, 1932	April, 1932
Chosen	C	7	2	1	1	6	30	55
	D	1				3	9	5
France	C		6	1				
Greece	C						1	8
Guatemala	C				5			
	D				1			

Place		October, 1931	November, 1931	December, 1931	January, 1932	February, 1932	March, 1932	April, 1932
Mexico (see also table above)	D	427	419	423				
Morocco	C	91	152	279	488	368	308	101
Turkey (see also table above)	C				31	22	2	
	D				1	1		

[3] From Mar. 6 to Apr. 30, 1932, 551 cases of smallpox with 6 deaths, were reported in Sierra Leone.

[4] A suspected case.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

Place		Dec. 13, 1931–Jan. 9, 1932	Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Week ended— April, 1932				May, 1932				June, 1932			
						9	16	23	30	7	14	21	28	4	11	18	25
Algeria:																	
Algiers	C	4	1	3	7		8	9	23	7	23	31		8	5	5	
Constantine Department	C	5	7		7									1			
Geryville	C		7	1													
Oran	C				1								4	10			
Bulgaria	C	22	44	66	44	15	6	15	9	10	7	16	5	4	5		
	D	3	6	6	2		3	4	2		2	1		1			
Chile:																	
Antofagasta	C	1	1									1					
Santiago	C				1		1										
China:																	
Hankow	C	4			5						1		1				
Swatow	C			2													
Tientsin	C										1						
Chosen (see table below).																	
Colombia: Cali	D			1													
Czechoslovakia (see table below).																	
Egypt:																	
Alexandria	C	5		1		5	2	7					1	5	2		1
Beheira	C	7		70	46				5								
	D			16					1								
Dakahlia	C											69					
Gharbieh	C	1		12					5								
	D								2								
Port Said	C													1			
Provinces	C	11	43	333	676	112	49	41	20	27	38	38	60	139			
	D	2	3	25	49	18	9	12	4	6	1	1		10			
Greece (see table below).																	
Irish Free State:																	
Roscommon County—																	
Leitrim	C											1					
	D											1					
Roscommon	C													1			
Waterford County—Lismore	C	1															

Latvia (see table below).																	
Lithuania (see table below).																	
Mexico:																	
Guadalajara	D	1															
Mexico City, including municipalties in Federal District	C	11	25	20	7	3	2	3	3	2		5	1	2	4		
	D	6	9	12	4	1		2					2		1		
San Luis Potosi	D	1		1	1												
Morocco	C	9	6	59	29	9	7	3	15	3	7	7	2	13	5	4	
	D	1		6	6	1									3		
Palestine	C	4	3	1						1				2	1		
Paraguay: Asuncion	D			1													
Poland	C	193	265	215	255	85	95	119	115	70	106	106	98	83	77	21	
	D	14	10	21	22	5	10	11	13	7	4	5	9	3	4	1	
Portugal:																	
Lisbon	C													2	5		
Oporto	C		1	1		10				3				4			
Rumania	C	108	264	296	270	89	62	55	46	61	60	53					
	D	10	13	28	31	8	6	5	2	8	8						
Tunisia: Tunis	C	2	1	24	81	32	6	20	19	26	15	13	1	13	9		
	D			3	8	4											
Turkey (see table below).																	
Union of South Africa:																	
Cape Province	C	P	P	P	P	P	P	P	P	P	P	P					
Natal	C	P		P				P	P	P							
Orange Free State	C	P	P	P	P	P	P	P	P	P	P	P					
Transvaal	C	P	P	P													
Venezuela: Caracas (see table below).																	
Yugoslavia (see table below)																	
On vessel: At Antofagasta, from Iquique and points north	C	1															

Place		December, 1931	January, 1932	February, 1932	March, 1932	April, 1932	May, 1932
Chosen: Seoul	C			5	4		
	D			1			
Czechoslovakia	C	10	1			1	
	D	3					
Greece	C	6	4	4	7	1	
	D	1					
Latvia	C	12					

Place		December, 1931	January, 1932	February, 1932	March, 1932	April, 1932	May, 1932
Lithuania	C	20	21	10	32	25	13
	D	1	3	3	3	5	1
Turkey	C	21	14	22	6	1	
	D	2	3	1	3		
Venezuela: Caracas	D	1	2				
Yugoslavia	C	14	11	26	5	29	34
	D	1		2	1		6

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

YELLOW FEVER

[C indicates cases; D, deaths; P, present]

Place		Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Week ended— April, 1932: 9	16	23	30	May, 1932: 7	14	21	28	June, 1932: 4	11	18	25	July 2, 1932
Brazil:																	
Bahia State—Esplanada	C								P								
Ceara State	C							1									
	D							1									
Espirito Santo State	C			2	1	P	P	P									
	D			2	1												
Santa Teresa (about 56 miles from Victoria)	D		1														
Parahyba State	C															1	
	D															1	
Pernambuco State	D				1												
Dahomey: Porto Novo	C			1													1
	D			1													
Gold Coast:																	
Avudua	C			1	1												
Cape Coast	C			P													
Tamale	C			1													
Yapei	C		1														
Nigeria	C											1					

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SPECIAL ARTICLE

Service of State to Local Health Departments

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

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CONTENTS

PUBLIC HEALTH REPORTS

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SERVICE OF STATE TO LOCAL HEALTH DEPARTMENTS[1]

By H. S. MUSTARD, M. D., *Assistant Commissioner, Tennessee Department of Public Health,* and W. K. SHARP, Jr., M. D., *Acting Assistant Surgeon, United States Public Health Service*

Whether in business, military operations, or public health work, there has always been, and perhaps always will be, some conflict between executive organization and field forces. It is impossible that either can continuously be conscious of the problems and perspective of the other. Although each acknowledges its dependence upon the other and there is a common objective and a generally agreed upon method of approach, there is not complete agreement as to details of strategy, distribution of service, and the relative importance of various phases of local operations.

In the relationship of the State department of health to county departments of health, the matter is still more complex, because in most instances the State authority is rather indirect, tacitly assumed or waived, and based to a certain extent upon funds contributed by the State to a local cooperative project. The usual relationship in the South is somewhat as follows:

(1) In ordinary circumstances full authority for local health procedures rests with the local political unit, the county. Usually, however, the State has the right to review and may assume control in the smaller political unit on the breakdown of local machinery.

(2) In certain instances, as in the operation of a vital statistics law, the direct responsibility for enforcement rests with the State department of health.

(3) Through financial commitment to local budgets the State assumes partnership interest and prerogatives in the conduct of full-time local health work.

It is through the last of these relationships that the State department of health receives its greatest opportunity for service; and unless such an arrangement exists, it seems highly improbable that the fullest and soundest development will take place in local health service, or that the State department of health will capitalize to a maximum its potentialities for aid in this field. That the State department of

[1] Read in section on public health, Southern Medical Association, twenty-fifth annual meeting, New Orleans, La., Nov. 18-20, 1931. From the Tennessee Department of Public Health.

health will so function presupposes facilities, proper type of organization, and sound policies in the central office. Thus, as a requisite, the State department of health must have at its disposal funds for assistance of county health departments. It must be organized so that administrative channels are deeply grooved and smooth, with policies clearly defined and easily understood. These things are necessary if the county health officer is to know what service he may expect, and how, when, and through whom he may obtain it; and they are necessary things, too, if the State department of health is to be in position to act as stimulator, stabilizer, and adviser.

In rendering service the State department of health has the opportunity to function along the following general lines:

(1) Through financial assistance.
(2) Through establishment of standards for personnel.
(3) Through administrative guidance.
(4) Through technical service.

(1) *Financial assistance.*—Though it is generally agreed that the State is obligated to assist financially in the development and maintenance of county health work, and though most extra-State agencies route through the State department of health their aid to counties there is no consensus of opinion as to what constitutes adequate local health service, nor as to the degree in which the State should participate financially. Except in very rare instances permanent progress has not been made in developing local health work without financial aid and technical assistance from extra-county sources. Many schemes have been tried, a number of others have been proposed. At the two extremes of those methods in operation are (1) that system which allocates a flat amount of State funds to every county regardless of population, health problems, ability, or lack of ability of the particular county to pay for health service; (2) the system where the amount of State commitment is made, not according to any previously considered standard or formula, but rather in light of apparent needs of the local situation and to some extent on the basis of bargaining. Sibley and Mountin [2] have reviewed quite thoroughly the various factors that might be taken into consideration in State aid in county health work. The difficulties which immediately appear are that the fewer the factors taken into consideration the less likely is State aid to be granted upon an equitable basis, and the greater the number of factors taken into consideration the more complex does the equalization formula become—so complex, in fact, that one doubts that it would be understood by the average rural appropriating body. It would seem that whatever plan for State aid is adopted, it must be easily understandable and readily applicable. Perhaps the two

[2] Public Health Reports, Jan. 3, 1930.

elements most concerned would be the assessed valuation and unit of population to be served.

Financial commitment to a county should be made on the basis of a contract between the State department of health and the responsible local authorities. Where the terms of the contract are not committed to writing and not signed by both parties, it is almost inevitable that there arise some misunderstanding and cross-currents. One of the most unfortunate of these is that the State department of health loses its partnership rights and fails to develop reasonable standardization in county health work, as in records, procedures, and definition of terms. Thus the central office finds itself in a position where, because of pressure of one sort or another, it is forced to continue to contribute to a local department of health even though a very poor grade of work is being done. To meet this situation the Tennessee State Department of Health inserts the following paragraph in all budgets for State aid to county health work:

> It is understood and agreed that this financial commitment by the State Department of Public Health is made contingent upon efficient operation of the health unit concerned, that such health unit will be operated in accordance with the last issued revision of the Manual for Conduct of County Health Departments and the Record Manual of the State Department of Public Health, and that in order to determine the efficiency of the unit concerned and to improve the service, the State Department of Public Health will from time to time detail staff members to said unit for advisory service and appraisal purposes.

(2) *Standards for Personnel.*—No argument is needed to establish the fact that a high grade of service demands a high grade of personnel. Other things being equal, training and experience, or the lack of training or experience, will determine whether a program will be successful of unsuccessful. Inasmuch as the demand for qualified personnel is in excess of the supply, it is necessary that the State department of health require instruction, training, and experience of local health personnel as a requisite to State participation in a local health project. It is our opinion that such instruction (whether to physicians, nurses, or inspectors) should be in the nature of graduate work of university standard, undertaken under the auspices of a university, perhaps with selected members of the staff of departments of health participating in the course, and with special facilities available for field experience. Unless there is such a university affiliation, teaching methods and standards are not likely to be of a high grade, nor is the student likely to undertake his work as seriously as is desirable; and unless there are specially provided field facilities the small health unit used for field observation may be faced with the alternative of neglecting its day's work in order to serve in a teaching capacity or of neglecting its teaching responsibility in order to do the day's work. Unfortunately, but few universities are at present quali-

fied to give these courses. In the emergency, field training courses under experienced leadership have served a very useful purpose.

While it is not the purpose of this presentation to tabulate the details of service phases in the various States, it is interesting to note that the following situation exists in five fairly typical Southern States:

In Alabama the average age of 54 full-time county health officers is 44½ years. Thirty-four have had public-health training of from 1 to 7 weeks at a field training station.

In Georgia the average age of 34 full-time county health officers is 42 years. Twelve have had special public-health courses, 8 of the 12 having been at the training station at Indianola, Miss.

In Kentucky the average age of 78 full-time county health officers is 41. Four of these have had courses at Johns Hopkins University, University of Michigan, or Vanderbilt University; 33 at field training stations; and 34 had special training in Kentucky health departments. With three who had special training in pediatrics, Kentucky has a total of 74 county health officers with training of one sort or another.

In Mississippi the average age of full-time county health officers is 43. Seventy-five per cent of these had public health training prior to assuming duties.

In Tennessee, in 37 full-time health units with 44 medical officers, the average age is 40. Of these 44, 30 have received postgraduate instruction at Vanderbilt University, 6 at Johns Hopkins University, 1 at both Vanderbilt and Johns Hopkins, and 1 at Harvard University. Two others have been to field training stations. The remaining 5, all older men in point of service, have received no special training.

An important feature of predetermined standards for personnel is that those applicants who rely only upon political backing very obviously fail to qualify, and this tends to relieve the State health officer of many embarrassing situations.

(3) *Administrative guidance.*—If the State department of health is to give administrative guidance to local health units, both the State and local departments must be so organized and the relationship between the two must be such that the flow of service and the reception of service is quick, consistent, and through definite channels. Leadership may best be given by a relatively small, highly trained, efficient State health department. There is no greater impediment to a flow of service than the conception that the local department of health is the State department of health in miniature and that various personnel in the local units are responsible, respectively, to the different divisions of the State department of health for specialized activities. The most dangerous person to visit a county health department is one who sees only a single element of service and is willing to wreck balance of program to obtain development of his

or her particular project. Ultimately only two persons are responsible for official State and local health work; these are, respectively, the State health officer and the county health officer. The State health officer delegates authority to certain persons on his staff; the county health officer delegates authority to certain persons on his staff. It, therefore, stands out as a clear principle in administration that the State department of health should deal with local problems only through the county health officer and that there should be only one person in the State department of health to whom is delegated administrative authority in dealing with the county health officer. Some States have met this requirement by creating either within central administration, or closely allied to it, a section or division of county or local health work. It is to the director, or chief, of this service that the county health officer owes allegiance and to whom he is primarily responsible. Because this director has in many instances inducted the county health officer into office, and usually because the director of county health work is a man of broad experience and good judgment, and finally, because if local work is not done satisfactorily State financial aid may be withdrawn, the relationship between the local health officer and the director of county health work is such that the latter's judgment and directions are of sufficient weight to correct or prevent unsound practices in the local unit.

If the director of county health work representing the State health officer is to be the only person who possesses supervisory authority in dealing with full-time county health officers, it follows that heads of other divisions do not possess such authority. Of course, should the epidemiologist, for instance, feel that a poor grade of work is being done in certain counties, he would always have the opportunity of obtaining action through the director of county health work. Should he fail in this, which would seldom be the case, he would still be able to present his problem to the State health officer. Thus, while the director of a technical division would have administrative authority in his own division, his service, so far as local units are concerned, is technical in nature and his relationship is that of a consultant.

Supplementing this orderly organization, there should be in existence some type of manual of procedure. Such a manual may be general in nature, or it may go extensively into detail. It may include only a skeleton of administrative procedure or present the step-by-step routine in handling a communicable disease or in filing records. In any event, as procedures become rather well defined, they should be committed to writing and placed in the hands of each county health officer for his guidance. If some such formal lines of procedure have not been laid down and committed to writing, and if there are no

definitions of terms covering services common to all rural health departments, there may result considerable confusion, and procedures may be on a basis of tradition and precedent. Traditions are not interpreted to mean the same thing by different individuals nor are they interpreted consistently by the same individual at different times. Obviously, here is danger to be avoided.

A last item of utmost importance in maintaining the proper administrative relationship is this: Only one person in the county health department should report upon the work of the department. That person is the full-time county health officer, and he should make his reports to only one person—the director of county health work, who represents the State health officer.

(4) *Technical service.*—This type of service is to be sharply differentiated from administrative guidance; the latter is largely supervisory, the former is entirely advisory.

Technical service may be rendered from State to local departments of health through two sources; viz., (1) the office of the director of county health work, and (2) technical divisions of the department. The former, the office of the director of county health work, renders field technical service on schedule to all county health departments, and is therefore routine. Technical divisions of the State department of health, as sanitary engineering, preventable diseases, vital statistics, render not routine field service, but aid in special problems too detailed or too comprehensive to be handled by the technical personnel under the immediate direction of the director of county health work. Therefore, while these other divisions render a technical service, it is consultant rather than of routine nature. And none of these technical divisions nor the technical workers responsible to the director of county health work exercise any supervisory control over local health units.

We believe that in the office of the director of county health work there should be a group of persons capable of rendering technical advisory service to all classes of personnel in a county health department. Expressed in another way, there should be medical assistance, nursing assistance, clerical assistance, and assistance in sanitation.

So far as the county health officer is concerned, these people all report to him and become an integral part of his unit during their stay in his county. They serve in an advisory capacity to him. Any authority that they may possess with other local subordinate personnel is as a result of authority so delegated by the county health officer and not by virtue of any authority inherent in their position as staff members of the State department of health. This is extremely important. If the local health officer does not approve of any of their suggestions for raising the level of some particular service, he does not have to accept this advice from them. How, then, it may be

asked, does this technical personnel get its advice across with a stubborn, nonprogressive local health officer? Assuming that there is such a person, the procedure is quite simple. Each technical worker, on completion of a service in a given county, renders a detailed report to the director of county health work and may confer with him on certain problems. If the problems involved with the assumedly recalcitrant local health officer are of a minor nature, the director of county health work holds the matter in abeyance, hoping that at the next visit of that technical worker persuasion will yield the desired results. If the question under consideration is a serious one, the director of county health work has the opportunity of assuming a supervisory rôle and in this capacity corrects the situation.

The members of the staff rendering this technical service do not make casual visits of a day or two, but spend from one week to a month in each county. They remain long enough to demonstrate to local health officer, nurses, inspectors, and clerks the advantages of better technique and smoother procedures; and by having county personnel perform according to new and improved methods, a habit for the better is begun. This can not be accomplished completely in one period of service, and provisions must be made for follow-up visits. Two other features of this technical service should be emphasized: First, personnel should not be used merely as substitutes or to assist in some high-pressure campaign. If the office of county health work must provide substitutes in local areas for one reason or another, it should be done without interrupting this technical field service. Second, county health departments should not be overvisited by technical workers. This is not likely to happen if service is apportioned over the State as a whole, for personnel is seldom sufficient to meet demands and needs. In scheduling, however, the precaution should be taken to avoid having two persons, say medical assistant and nursing assistant, working in the same county at the same time. This is usually too much for the local health officer to countenance, and more than he should be asked to bear.

SUMMARY

(1) A State department of health should be prepared to assist county health departments through financial assistance, establishment of standards for personnel, administrative guidance, and technical service.

(2) There is urgently needed some simple system of State equalization in the development of county health work.

(3) The quality of county health work may be greatly improved by employment of only those persons who meet reasonably high and definite standards.

(4) Administrative relationships to full-time county health departments should be clear-cut, definite, and limited to one section or division of the State department of health.

(5) Technical service in all its phases must be available to county health departments. This should be rendered routinely by high grade personnel working out of the office of the director of county health work, and where consultation service is needed, specialists in other divisions should serve as consultants.

(6) In rendering service, the State department of health should avoid overvisiting of counties, and should not risk unbalance of county programs through subjecting the local health officer to high-pressure persuasion of State staff members interested in one phase of public-health work.

DEATH RATES IN A GROUP OF INSURED PERSONS

RATES FOR PRINCIPAL CAUSES OF DEATH FOR MAY, 1932

The accompanying table is taken from the Statistical Bulletin for June, 1932, issued by the Metropolitan Life Insurance Co., and presents the mortality record of many millions of insured persons of the industrial insurance department of the company for May, 1932, as compared with that for the preceding month and for May, 1931. It also presents a comparison of the cumulative death rates for January–May for the two years. The annual general death rate for this group in the past few years has averaged about 72 per cent of the death rate for the registration area of the United States.

The Bulletin states:

Health conditions up to the end of May have continued to be better than ever before during the like period of the year. This is shown by the unprecedentedly low death rate of 9.2 per 1,000 among the many millions of industrial policy-holders of the company in the United States and Canada. The previous low point for the January to May period was 9.5—recorded in 1930; last year's figure was 9.8. Among these insured persons living in the Pacific Coast and Mountain States, the death rate so far this year is 3 per cent below the previous minimum; in the remainder of the United States it is 2.5 per cent lower than ever before; and among about 1,200,000 insured Canadians, 4 per cent lower.

For the month of May there was registered the lowest death rate (8.5 per 1,000), with a single exception, ever recorded for that month of the year. The exception was May, 1931, when the rate was 8.4.

Large drops in the rates for three important causes of death have been the chief factors in making 1932, to date, the best of all health years. The record for tuberculosis is the most noteworthy item. The mortality for all forms of tuberculous disease, at the end of May, was more than 10 per cent below the 1931 figure for the like part of the year; in two years the reduction has amounted to 14.6 per cent. Inasmuch as that part of the year in which the highest mortality from tuberculosis always occurs is now past, it is quite safe to predict that not only will a new low point be reached this year in the death rate, but that the reduction will be a large one. The mortality from pneumonia is also lower than it has ever

been during the winter and spring seasons. The decline, as compared with the first five months of 1931, is 20.6 per cent. A still greater drop (27 per cent) is in evidence for influenza. The death rate for accidents is 5.7 per cent below that for the like part of last year, and the figure for automobile fatalities is 4.9 per cent lower. Diseases of pregnancy and childbirth are now causing fewer deaths than ever before.

No important diseases except cancer and diabetes have registered noteworthy increases during 1932. The mortality from cancer is much higher than ever before, with a rise of nearly 8 per cent since 1931, and of nearly 17 per cent in two years. The rise in the diabetes death rate to date amounts to 5.2 per cent.

Death rates (annual basis) per 100,000 for principal causes of death

[Industrial department, Metropolitan Life Insurance Co.]

Cause of death	Annual rate per 100,000 lives exposed [1]				
	May, 1932	April, 1932	May, 1931	Cumulative January to May	
				1932	1931
Total, all causes	848.0	957.8	843.6	924.0	975.3
Typhoid fever	1.0	.6	1.6	1.1	1.2
Measles	3.2	2.4	5.9	2.8	4.7
Scarlet fever	4.3	4.7	3.9	4.1	4.1
Whooping cough	3.0	4.9	3.4	3.8	3.7
Diphtheria	3.0	4.5	4.2	4.9	5.0
Influenza	18.7	37.1	16.9	28.2	33.6
Tuberculosis (all forms)	71.4	78.7	79.7	73.8	82.1
Tuberculosis of respiratory system	63.4	68.9	70.1	65.6	72.8
Cancer	86.5	90.1	77.6	89.3	82.9
Diabetes mellitus	22.6	25.2	18.9	24.3	23.1
Cerebral hemorrhage	62.3	66.2	60.5	67.0	66.7
Organic diseases of heart	157.1	169.3	145.6	167.4	[illegible]
Pneumonia (all forms)	69.6	97.6	72.0	91.6	115.3
Other respiratory diseases	9.3	10.3	10.3	11.0	13.2
Diarrhea and enteritis	7.4	8.5	8.8	8.1	9.9
Bright's disease (chronic nephritis)	65.5	73.5	64.5	72.[illegible]	72.8
Puerperal state	9.8	10.3	10.4	[illegible]	11.9
Suicides	11.4	11.7	9.6	[illegible].6	9.6
Homicides	5.3	5.9	7.3	6.1	6.6
Other external causes (excluding suicides and homicides)	47.7	49.8	51.9	49.7	52.7
Traumatism by automobiles	15.2	16.0	18.2	17.5	18.4
All other causes	188.6	206.2	190.6	197.2	204.2

[1] All figures in this table include insured infants under 1 year of age. The rates for 1932 are subject to slight correction, since they are based on provisional estimates of lives exposed to risk.

COURT DECISION RELATING TO PUBLIC HEALTH

City license, in addition to State license, may be required for sale of soda-water beverages.—(Wisconsin Supreme Court; Kugler *v.* City of Milwaukee et al., 242 N. W. 481; decided May 10, 1932.) Section 98.12 of the State statutes provided for the licensing by the State dairy and food commissioner of persons selling soda-water beverages. Section 165.31 of the statutes was a part of the prohibition enforcement act and required a municipal license to sell nonintoxicating liquors. Soda water contains a trace of alcohol, stated as 1 to 1,791 by volume. By chapter 96 of the Laws of 1929, subsection 10 was added to section 98.12. This subsection provided that no license

under section 165.31 should be necessary for any person, firm, or corporation licensed under section 98.12. Chapter 129 of the Laws of 1929 repealed the prohibition enforcement act (of which section 165.31 was a part) but created section 66.05 (9) (a) which conferred on municipalities precisely the same power to license vendors of non-intoxicating liquors that had existed under section 165.31. With the statute law thus, the supreme court rendered two decisions, one relating to wholesale dealers in soda-water beverages and the other relating to retail dealers. These decisions were to the effect that, inasmuch as section 66.05 (9) (a) contained the same provision as was contained in repealed section 165.31, under subsection 10 of section 98.12 no municipal license was required of a person already licensed under section 98.12. In 1931, the legislature, by section 18 of chapter 79, expressly repealed said subsection 10.

An ordinance of Milwaukee required that a person selling non-intoxicating liquor procure a license, and the plaintiff, a grocer licensed under section 98.12 to sell soda-water beverages, sought to enjoin the enforcement of such ordinance. Chapter 79 of the Laws of 1931, which repealed subsection 10 of section 98.12, was a revisor's bill for the purpose of correcting errors, reconciling conflicts, supplying omissions, and repealing obsolete and unconstitutional provisions. The claim of the plaintiff was that the enactment of the revisor's bill did not operate to repeal subsection 10 because it went on the erroneous assumption that said subsection had become obsolete because it was repealed with the rest of the prohibition act, whereas the supreme court had held in the decisions above mentioned that it was not so repealed but was continued in force by section 2 of the repealing statute. The supreme court, however, while stating that revisors' bills stand on a different footing from ordinary legislative acts, took the view contended for by the defendants, namely, that, as the legislature in so many words had declared subsection 10 repealed, it was repealed, regardless of the misapprehension under which the declaration was made. The court said:

> * * * When enactment of a revisor's bill leaves the law ambiguous, no doubt full force should be given to the idea that, as no change in the law was intended, no change in the law was effected. But where, as here, there is no ambiguity but a plain declaration of repeal, we can not avoid giving that declaration effect.

Other points raised by the plaintiff were decided adversely to him, and the finding of the lower court in favor of the city was affirmed.

DEATHS DURING WEEK ENDED JULY 9, 1932

Summary of information received by telegraph from industrial insurance companies for the week ended July 9, 1932, and corresponding week of 1931. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)

	Week ended July 9, 1932	Corresponding week, 1931
Policies in force	72, 162, 038	75, 105, 915
Number of death claims	9, 124	12, 426
Death claims per 1,000 policies in force, annual rate	6. 6	8. 6
Death claims per 1,000 policies, first 27 weeks of year, annual rate	10. 1	10. 4

Deaths [1] from all causes in certain large cities of the United States during the week ended July 9, 1932, infant mortality, annual death rate, and comparison with corresponding week of 1931. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)

[The rates published in this summary are based upon mid-year population estimates derived from the 1930 census]

City	Week ended July 9, 1932				Corresponding week, 1931		Death rate [2] for the first 27 weeks	
	Total deaths	Death rate [2]	Deaths under 1 year	Infant mortality rate [3]	Death rate [2]	Deaths under 1 year	1932	1931
Total (85 cities)	6, 795	9.7	552	[4] 45	10.8	663	11.9	12.8
Akron	47	9.2	3	37	6.9	3	7.6	8.1
Albany [5]	27	10.8	3	61	12.5	3	14.4	14.7
Atlanta [6]	59	10.9	5	49	18.6	12	13.7	15.9
White	22	6.1	3	44	12.7	5	10.7	12.6
Colored	37	20.2	2	57	30.2	7	19.7	22.5
Baltimore [5] [6]	149	9.5	8	28	11.0	14	13.8	15.5
White	108	8.4	4	18	9.5	12	12.9	14.1
Colored	41	14.3	4	64	18.1	2	18.2	21.7
Birmingham [6]	54	10.2	5	52	16.3	9	11.6	14.6
White	23	7.0	3	49	11.3	3	9.0	11.2
Colored	31	15.4	2	54	24.4	6	15.9	20.2
Boston	177	11.7	19	57	12.9	27	14.9	15.0
Bridgeport	24	8.5	1	18	10.6	1	11.2	12.0
Buffalo	121	10.8	15	72	14.4	18	13.8	14.1
Cambridge	21	9.6	3	62	5.9	1	13.3	12.9
Camden	22	9.7	2	35	10.1	3	15.2	15.1
Canton	23	11.1	2	50	6.8	4	9.8	10.9
Chicago [5]	593	8.8	33	33	10.4	50	10.3	11.6
Cincinnati	122	13.8	13	84	18.4	19	15.4	16.9
Cleveland	162	9.2	11	36	10.4	21	11.5	11.9
Columbus	63	11.0	3	30	13.9	6	13.9	14.6
Dallas [6]	61	11.3	12	-------	13.6	7	10.9	12.0
White	51	11.4	11	-------	12.2	3	10.0	10.6
Colored	10	10.7	1	-------	19.8	4	15.0	18.9
Dayton	29	7.3	4	57	8.9	1	12.2	12.9
Denver	60	10.6	7	69	14.7	5	15.0	14.7
Des Moines	22	7.9	4	69	7.9	1	11.7	11.8
Detroit	217	6.6	16	29	7.7	24	8.2	9.0
Duluth	21	10.8	0	0	10.8	3	11.1	11.0
El Paso	23	11.2	7	-------	17.9	8	14.1	16.8
Erie	34	14.9	2	42	8.0	3	12.1	11.1
Evansville	26	12.8	0	0	13.0	2	10.3	12.2
Fall River [5] [7]	27	12.2	1	27	9.0	2	12.5	12.6
Flint	20	6.1	6	88	7.0	0	8.0	7.7
Fort Wayne	23	9.9	1	26	10.1	1	10.5	11.2
Fort Worth [6]	42	12.9	4	-------	5.9	5	10.3	11.4
White	26	9.4	2	-------	5.6	5	9.8	11.0
Colored	16	31.3	2	-------	7.7	0	13.2	13.6
Grand Rapids	19	5.7	1	17	5.2	1	9.1	9.7
Hartford	30	9.2	1	13	-------	-------	-------	-------
Houston [6]	66	10.6	5	-------	14.5	8	11.1	11.6
White	48	10.5	3	-------	12.9	6	10.3	10.8
Colored	18	11.0	2	-------	18.8	2	13.2	13.8

See footnotes at end of table.

Deaths[1] *from all causes in certain large cities of the United States during the week ended July 9, 1932, infant mortality, annual death rate, and comparison with corresponding week of 1931*—Continued

City	Week ended July 9, 1932				Corresponding week, 1931		Death rate[2] for the first 27 weeks	
	Total deaths	Death rate[2]	Deaths under 1 year	Infant mortality rate[3]	Death rate[2]	Deaths under 1 year	1932	1931
Indianapolis[6]	77	10.8	4	32	14.5	7	13.1	14.5
White	61	9.7	3	28	14.5	5	12.7	14.0
Colored	16	18.1	1	69	15.0	2	15.7	17.9
Jersey City	69	11.2	11	91	8.7	4	11.7	12.5
Kansas City, Kans.[6]	34	14.4	2	44	9.3	0	12.8	14.1
White	25	13.1	2	54	8.4	0	12.4	13.0
Colored	9	19.9	0	0	13.3	0	14.4	18.4
Kansas City, Mo	73	9.2	7	79	10.8	4	12.5	14.2
Knoxville[6]	23	10.7	5	126	11.9	4	12.1	13.5
White	18	10.1	4	112	10.3	3	11.1	12.4
Colored	5	14.3	1	270	20.5	1	17.4	19.2
Long Beach	27	8.8	1	26	8.6	0	9.1	10.1
Los Angeles	241	9.1	7	21	11.8	19	10.8	11.1
Louisville[6]	93	15.8	9	82	13.4	8	13.6	15.3
White	69	13.8	9	94	13.6	8	12.3	13.7
Colored	24	26.3	0	0	12.0	0	20.9	24.0
Lowell[7]	14	7.3	0	0	16.6	5	14.2	13.6
Lynn	19	9.6	1	28	6.6	0	11.4	10.5
Memphis[6]	101	20.0	15	163	13.7	4	16.7	17.0
White	45	14.5	10	171	10.4	2	13.0	13.9
Colored	56	29.1	5	151	19.0	2	22.6	21.9
Miami[6]	21	9.6	1	28	10.7	0	11.8	12.5
White	14	8.3	1	39	7.2	0	10.6	11.4
Colored	7	14.5	0	0	22.7	0	16.0	16.5
Milwaukee	77	6.7	6	29	8.4	11	9.1	10.1
Minneapolis	73	7.9	5	33	11.9	8	10.7	12.0
Nashville[6]	56	18.7	10	149	17.8	4	15.3	17.5
White	40	18.3	10	196	13.9	2	14.0	15.1
Colored	16	19.5	0	0	28.0	2	18.9	24.0
New Bedford[7]	14	6.5	2	58	12.0	5	11.9	13.2
New Haven	22	7.1	1	20	12.8	3	12.7	12.6
New Orleans[6]	142	15.6	16	91	17.7	21	15.7	17.7
White	79	12.3	8	70	14.1	12	13.2	14.3
Colored	63	24.0	8	131	26.7	9	21.6	26.0
New York	1,210	8.8	104	46	9.4	112	11.2	12.1
Bronx Borough	175	6.6	19	55	7.2	14	8.3	8.9
Brooklyn Borough	421	8.2	38	42	8.6	48	10.5	11.2
Manhattan Borough	444	13.1	35	50	14.3	40	17.2	18.4
Queens Borough	122	5.3	7	29	5.2	8	7.2	7.8
Richmond Borough	48	15.0	5	98	15.6	2	14.3	14.2
Newark, N. J	65	7.6	5	27	11.7	11	11.2	12.6
Oakland	62	10.8	3	38	9.6	3	10.7	10.8
Oklahoma City	28	7.1	3	41	7.2	1	10.2	11.7
Omaha	37	8.8	3	34	11.1	6	13.4	14.5
Paterson	31	11.7	1	18	10.9	1	13.2	14.6
Peoria	14	6.6	3	83	12.0	4	11.3	13.5
Philadelphia	398	10.5	28	43	10.0	39	13.2	14.4
Pittsburgh	121	9.3	12	55	11.9	19	13.4	15.9
Portland, Oreg	47	7.9	1	13	9.3	3	11.4	12.1
Providence	44	9.0	1	10	8.0	7	13.9	13.8
Richmond	60	16.9	5	75	15.3	9	14.2	16.5
White	39	15.4	4	90	13.1	2	11.7	14.0
Colored	21	20.8	1	46	20.7	7	20.4	22.9
Rochester	62	9.7	4	38	8.3	4	12.6	12.8
St. Louis	152	9.5	15	54	11.8	8	13.9	16.8
St. Paul	38	7.1	1	11	11.5	1	10.5	11.6
Salt Lake City	17	6.1	2	31	13.1	2	10.9	12.5
San Antonio	68	14.4	8	--------	12.8	10	14.1	15.9
San Diego	41	13.1	3	65	13.3	2	14.6	14.3
San Francisco	117	9.2	2	14	11.2	9	12.8	13.3
Schenectady	16	8.7	0	0	7.0	2	10.7	10.8
Seattle	59	8.2	2	20	11.8	0	12.0	12.0
Somerville	17	8.4	1	40	5.5	2	9.7	10.2
South Bend	22	10.3	2	58	4.3	1	7.9	8.7
Spokane	28	12.5	0	0	9.9	1	12.4	12.7
Springfield, Mass	32	10.8	4	67	8.6	1	11.7	12.7
Syracuse	43	10.4	3	39	8.6	2	12.2	12.3
Tacoma	21	10.1	0	0	12.6	0	12.5	12.8
Tampa[6]	18	8.7	0	0	11.4	1	12.0	12.7
White	13	8.0	0	0	11.3	1	11.3	11.7
Colored	5	11.5	0	0	11.7	0	14.4	16.2

See footnote at end of table.

Deaths [1] from all causes in certain large cities of the United States during the week ended July 9, 1932, infant mortality, annual death rate, and comparison with corresponding week of 1931—Continued

City	Week ended July 9, 1932				Corresponding week, 1931		Death rate [2] for the first 27 weeks	
	Total deaths	Death rate [2]	Deaths under 1 year	Infant mortality rate [3]	Death rate [2]	Deaths under 1 year	1932	1931
Toledo	69	12.0	6	65	12.3	4	12.2	12.7
Trenton	35	14.7	5	99	14.7	5	16.5	17.6
Utica	27	13.7	2	57	9.2	1	16.2	15.0
Washington, D. C.[6]	142	15.0	17	95	14.2	14	17.1	16.8
White	98	14.3	10	82	12.7	10	15.2	14.4
Colored	44	16.8	7	125	18.2	4	21.9	23.0
Waterbury	20	10.3	1	33	9.8	1	9.8	10.2
Wilmington, Del.[7]	27	13.2	2	45	10.3	1	15.8	15.1
Worcester	34	8.9	2	28	8.5	1	12.8	13.3
Yonkers	14	5.1	0	0	6.4	0	8.1	9.3
Youngstown	29	8.6	2	32	13.0	6	10.0	11.0

[1] Deaths of nonresidents are included. Stillbirths are excluded.
[2] These rates represent annual rates per 1,000 population, as estimated for 1932 and 1931 by the arithmetical method.
[3] Deaths under 1 year of age per 1,000 estimated live births. Cities left blank are not in the registration area for births.
[4] Data for 81 cities.
[5] Deaths for week ended Friday.
[6] For the cities for which deaths are shown by color, the percentages of colored population in 1930 were as follows: Atlanta, 33; Baltimore, 18; Birmingham, 38; Dallas, 17, Fort Worth, 16; Houston, 27; Indianapolis, 12, Kansas City, Kans., 19; Knoxville, 16, Louisville, 15, Memphis, 38; Miami, 23, Nashville, 28; New Orleans, 29, Richmond, 29, Tampa, 21, and Washington, D. C., 27.
[7] Population Apr. 1, 1930, decreased 1920 to 1930, no estimate made.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended July 16, 1932, and July 18, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 16, 1932, and July 18, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended July 16, 1932	Week ended July 18, 1931	Week ended July 16, 1932	Week ended July 18, 1931	Week ended July 16, 1932	Week ended July 18, 1931	Week ended July 16, 1932	Week ended July 18, 1931
New England States:								
Maine	3	2			21	10	0	0
New Hampshire					14	1	0	0
Vermont					33		0	0
Massachusetts	33	33	2	3	341	228	0	1
Rhode Island	4	2			8	61	0	0
Connecticut	1	8	5	1	66	133	0	0
Middle Atlantic States:								
New York	62	81	[1] 1	[1] 1	1,048	842	5	8
New Jersey	18	24	3	1	282	202	2	2
Pennsylvania	30	60			263	587	3	0
East North Central States.								
Ohio	30	11	10	8	393	126	3	0
Indiana	14	12	12		16	26	4	4
Illinois	37	69	18	45	181	358	2	4
Michigan	17	26	16		835	134	3	4
Wisconsin	9	5	22	8	273	216	2	1
West North Central States:								
Minnesota	4	4	2	1	12	26	0	0
Iowa	24	1			8	20	0	2
Missouri	23	14			24	15	2	4
North Dakota	9	10			8	1	0	0
South Dakota	3	5			3	3	0	0
Nebraska	5	3			6	1	1	0
Kansas	6	12			42	4	1	1
South Atlantic States:								
Delaware						17	0	0
Maryland [2] [3]	7	8	3	2	17	66	0	5
District of Columbia	8	7			2	8	0	0
Virginia	4				29		1	
West Virginia	3	4		4	39	102	0	0
North Carolina	17	16			142	101	1	0
South Carolina	2	3	111	48	43	25	0	0
Georgia [3]	9	2	39	3	12	7	1	0
Florida [3]	14	5				12	0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 16, 1932, and July 18, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended July 16, 1932	Week ended July 18, 1931	Week ended July 16, 1932	Week ended July 18, 1931	Week ended July 16, 1932	Week ended July 18, 1931	Week ended July 16, 1932	Week ended July 18, 1931
East South Central States:								
Kentucky	8	2			18	8	0	0
Tennessee [3]	6	3	8	1	1	4	2	2
Alabama [3]	12	11	12	5		21	2	3
Mississippi	10	10					0	0
West South Central States:								
Arkansas	2	1	1		3	4	0	0
Louisiana	12	12	4	3	3	2	1	2
Oklahoma [4]	4	6	8	5	8	6	0	0
Texas [3]	46	26	23	1	9	19	0	1
Mountain States:								
Montana					6	10	0	0
Idaho		3			1	6	0	3
Wyoming					9	4	0	0
Colorado	5	8			14	9	0	0
New Mexico	6	1				7	1	0
Arizona					1		0	0
Utah [3]				6	2	6	0	0
Pacific States:								
Washington	2	5			45	9	0	1
Oregon	2	3	8	8	24	23	0	0
California	38	51	29	8	84	159	4	1
Total	549	569	337	162	4,389	3,629	41	49

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended July 16, 1932	Week ended July 18, 1931	Week ended July 16, 1932	Week ended July 18, 1931	Week ended July 16, 1932	Week ended July 18, 1931	Week ended July 16, 1932	Week ended July 18, 1931
New England States:								
Maine	0	0	9	8	0	0	4	2
New Hampshire	0	1	11	0	0	0	0	2
Vermont	0	1	4	8	0	0	0	0
Massachusetts	0	16	138	106	0	11	7	12
Rhode Island	0	0	21	2	0	0	0	0
Connecticut	0	5	25	16	0	0	2	4
Middle Atlantic States:								
New York	9	57	234	154	14	4	10	16
New Jersey	5	1	64	65	0	0	11	4
Pennsylvania	4	1	127	142	0	1	17	23
East North Central States:								
Ohio	3	1	107	51	3	34	34	5
Indiana	1	0	17	29	1	27	26	7
Illinois	4	3	104	122	4	9	45	18
Michigan	0	7	163	119	2	5	7	7
Wisconsin	0	6	22	37	0	9	2	5
West North Central States:								
Minnesota	1	1	21	11	0	1	2	1
Iowa	0	0	13	24	8	33	3	0
Missouri	1	0	30	15	0	2	15	17
North Dakota	1	0	4	2	1	1	1	0
South Dakota	0	1	6	6	0	3	0	2
Nebraska	1	0	10	4	3	7	1	2
Kansas	1	1	12	16	2	15	6	8
South Atlantic States:								
Delaware	0	0	5	1	0	0	1	14
Maryland [2, 3]	1	0	12	16	0	0	9	7
District of Columbia	0	0	4	5	0	0	1	0
Virginia	2		27		0		43	
West Virginia	0	0	2	6	0	0	25	17
North Carolina	1	1	18	15	0	0	39	59
South Carolina	0	2	1	6	0	0	67	101
Georgia [3]	0	0	4	12	0	0	59	93
Florida [3]	0	0	4	2	1	0	7	6

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 16, 1932, and July 18, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended July 16, 1932	Week ended July 18, 1931	Week ended July 16, 1932	Week ended July 18, 1931	Week ended July 16, 1932	Week ended July 18, 1931	Week ended July 16, 1932	Week ended July 18, 1931
East South Central States:								
Kentucky	1	0	14	12	2	0	146	22
Tennessee [3]	0	1	8	9	0	1	110	39
Alabama [3]	1	1	11	6	14	1	25	29
Mississippi	1	2	1	3	1	5	45	41
West South Central States:								
Arkansas	0	0	1	1	0	1	26	28
Louisiana	0	0	7	6	0	2	59	49
Oklahoma [4]	1	1	6	8	7	8	34	44
Texas [3]	2	2	37	32	11	3	32	40
Mountain States:								
Montana	0	0	7	2	5	3	2	4
Idaho	0	0	1	7	0	0	1	5
Wyoming	0	0	0	4	0	0	0	1
Colorado	0	0	4	10	0	0	3	1
New Mexico	0	0	3	1	0	0	1	3
Arizona	0	0	3	1	0	0	2	2
Utah [2]	0	0	2	2	0	0	0	1
Pacific States:								
Washington	3	1	14	6	15	18	2	2
Oregon	0	0	5	2	2	6	4	5
California	2	3	46	32	6	7	16	13
Total	46	116	1,389	1,144	102	217	952	761

[1] New York City only
[2] Week ended Friday.
[3] Typhus fever, week ended July 16, 1932, 16 cases: 1 case in Maryland, 1 case in Georgia, 1 case in Florida, 1 case in Tennessee, 2 cases in Alabama, and 10 cases in Texas.
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa and for 1931 are exclusive of Tulsa only.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
May, 1932										
North Carolina	13	55	582		3,458	209	2	150	9	32
Puerto Rico		63	18	2,255	215	4	0		0	33
June, 1932										
Alabama	4	42	98	188	34	108	0	31	42	53
District of Columbia	1	21	1		74		2	39	0	3
Georgia	3	26	168	188	241	166	0	21		113
Nebraska		30			22		1	47	43	0
New Jersey	4	113	22	2	2,960		2	793	0	12
New Mexico		24		13	100		0	22	1	16
North Carolina	3	40	42		1,991	318	8	107	11	124
North Dakota	3	7	1		134		1	26	7	11
Vermont		7			1,159		0	48	21	0
Wyoming	2	2			229		0	27	0	3

May, 1932

	Cases
Beriberi:	
Puerto Rico	1
Chicken pox:	
North Carolina	311
Puerto Rico	50
Dysentery:	
Puerto Rico	23
Filariasis:	
Puerto Rico	4
German measles:	
North Carolina	58
Leprosy:	
Puerto Rico	4
Mumps:	
Puerto Rico	8
Ophthalmia neonatorum:	
North Carolina	3
Puerto Rico	6
Puerperal septicemia:	
Puerto Rico	10
Septic sore throat:	
North Carolina	2
Tetanus:	
North Carolina	1
Puerto Rico	4
Tetanus, infantile:	
Puerto Rico	31
Trachoma:	
Puerto Rico	5
Whooping cough:	
North Carolina	1,675
Puerto Rico	118

June, 1932

	Cases
Chicken pox:	
Alabama	44
District of Columbia	136
Georgia	63
Nebraska	46
New Jersey	749
New Mexico	19
North Carolina	173
North Dakota	83
Vermont	71
Wyoming	8
Dysentery:	
Georgia	102
New Mexico	3
North Carolina (bacillary)	1
German measles:	
New Jersey	60
New Mexico	1
North Carolina	24
Impetigo contagiosa:	
North Dakota	3
Lead poisoning:	
New Jersey	1
Lethargic encephalitis:	
Alabama	2
District of Columbia	2
New Jersey	1
North Dakota	4
Mumps:	
Alabama	51
Georgia	55
Nebraska	56
New Jersey	1,359
New Mexico	9
North Dakota	3
Vermont	335
Wyoming	31
Ophthalmia neonatorum:	
North Carolina	1
Paratyphoid fever:	
Georgia	1
North Carolina	2
Puerperal septicemia:	
New Mexico	1
Rabies in animals:	
New Jersey	44
Rocky Mountain spotted or tick fever:	
District of Columbia	1
New Jersey	2
New Mexico	1
Wyoming	23
Septic sore throat:	
Georgia	34
Nebraska	1
North Carolina	4
Wyoming	2
Tetanus	
New Jersey	1
Trachoma:	
New Jersey	42
New Mexico	1
Tularaemia.	
Alabama	2
Georgia	2
Wyoming	1
Typhus fever:	
Alabama	29
Georgia	24
North Carolina	2
Undulant fever:	
Alabama	1
Georgia	5
Nebraska	1
New Jersey	5
New Mexico	1
North Carolina	1
Vincent's angina:	
North Dakota	36
Whooping cough:	
Alabama	176
District of Columbia	67
Georgia	111
Nebraska	50
New Jersey	726
New Mexico	16
North Carolina	1,696
North Dakota	62
Vermont	86
Wyoming	75

RECIPROCAL NOTIFICATIONS

Notifications regarding communicable diseases sent during the month of June, 1932, by departments of health of States named to other State health departments

Disease	California	Connecticut	Illinois	Massachusetts	Minnesota	New York	Oregon	Washington
Epidemic meningitis					1			
Mumps				1				
Paratyphoid fever		1						1
Pellagra	1							
Rocky Mountain spotted fever								1
Scarlet fever			1			1		
Syphilis					6			
Tetanus				1		1		
Tuberculosis	7		3		22		1	
Typhoid fever		1	3	1		2		

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 95 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 33,310,000. The estimated population of the 88 cities reporting deaths is more than 31,750,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended July 9, 1932, and July 11, 1931

	1932	1931	Estimated expectancy
Cases reported			
Diphtheria:			
46 States	479	601	
95 cities	198	270	486
Measles:			
45 States	5,525	6,123	
95 cities	1,538	2,000	
Meningococcus meningitis:			
46 States	34	64	
95 cities	10	34	
Poliomyelitis:			
46 States	44	90	
Scarlet fever:			
46 States	1,523	1,389	
95 cities	534	497	508
Smallpox:			
46 States	88	419	
95 cities	9	14	22
Typhoid fever:			
46 States	746	700	
95 cities	78	91	68
Deaths reported			
Influenza and pneumonia:			
88 cities	313	375	
Smallpox:			
88 cities	0	0	

City reports for week ended July 9, 1932

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded, and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible but no year earlier than 1923 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	0	0	0	----------	0	0	0	1
New Hampshire:								
Concord	0	0	0	----------	0	0	0	1
Manchester	0	0	0	----------	0	0	0	0
Nashua	0	0	0	----------	0	0	0	0
Vermont:								
Barre	----------	0	----------	----------	----------	----------	----------	----------
Burlington	0	0	0	----------	0	0	0	0
Massachusetts:								
Boston	25	21	17	----------	0	119	34	12
Fall River	2	2	0	----------	0	10	2	1
Springfield	9	1	0	----------	0	25	1	1
Worcester	4	0	0	----------	0	30	0	1
Rhode Island:								
Pawtucket	0	0	0	----------	0	0	0	0
Providence	5	3	1	----------	0	13	4	2
Connecticut:								
Bridgeport	0	3	0	----------	0	34	0	1
Hartford	0	2	1	----------	0	2	0	2
New Haven	2	0	0	----------	0	0	5	0
MIDDLE ATLANTIC								
New York:								
Buffalo	12	7	0	----------	0	17	1	2
New York	109	156	55	3	2	285	135	99
Rochester	4	4	0	----------	0	1	1	2
Syracuse	27	0	0	----------	0	45	3	1
New Jersey:								
Camden	1	4	0	----------	0	0	0	1
Newark	14	10	2	----------	0	59	44	4
Trenton	0	0	1	----------	0	1	0	1
Pennsylvania:								
Philadelphia	36	35	5	2	0	5	31	22
Pittsburgh	0	12	0	----------	2	0	0	9
Reading	4	1	0	----------	0	11	0	1
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	1	3	1	----------	0	0	0	5
Cleveland	22	15	3	1	0	31	11	7
Columbus	0	2	1	2	2	21	0	1
Indiana:								
Fort Wayne	0	1	2	----------	0	0	0	1
Indianapolis	2	1	1	----------	0	3	19	6
South Bend	0	0	0	----------	0	0	0	2
Terre Haute	0	0	0	----------	0	6	0	2
Illinois:								
Chicago	42	66	16	2	1	91	3	12
Springfield	2	1	0	----------	0	0	0	1
Michigan:								
Detroit	21	30	12	1	2	383	9	12
Flint	1	1	1	----------	0	6	10	1
Grand Rapids	2	1	0	----------	0	5	5	1

City reports for week ended July 9, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
EAST NORTH CENTRAL—continued								
Wisconsin:								
Kenosha	0	0	0		0	74	0	0
Madison	2	0	0			6	0	
Milwaukee	32	8	2		0	64	7	3
Racine	5	0	0		0	2	3	0
Superior	2	0	0		0	0	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth	7	0	0		0	3	5	0
Minneapolis	5	8	5		0	3	2	3
St. Paul	6	3	0		0	1	7	1
Iowa:								
Des Moines	0	0	0			0	0	
Sioux City	1	0	0			0	0	
Waterloo	1	0	0			0	0	
Missouri:								
Kansas City	1	2	0		0	5	4	2
St. Joseph	0	0	0		0	0	0	1
St. Louis	1	19	11	1		1	2	
North Dakota:								
Fargo	1	0	0		0	1	0	0
Grand Forks	0	0	0			5	0	
South Dakota:								
Aberdeen	4	0	0			0	0	
Sioux Falls	0	0	0			0	0	
Nebraska:								
Omaha	1	2	5		0	1	0	3
Kansas:								
Topeka	8	0	0	1	0	21	6	0
Wichita	1	0	0		0	3	0	2
SOUTH ATLANTIC								
Delaware:								
Wilmington	0	1	0		0	0	0	1
Maryland:								
Baltimore	11	10	3		0	1	52	7
Cumberland	0	0	0		0	1	0	0
Frederick	0	0	0		0	0	0	0
District of Columbia:								
Washington	5	5	9		0	5	0	4
Virginia:								
Lynchburg	2	0	0		0	0	0	0
Richmond	0	1	1		0	0	0	4
Roanoke	0	0	0		0	0	0	0
West Virginia:								
Charleston	0	0	0		0	0	0	[1] 2
Huntington	0	0	2		0	1	0	0
Wheeling	0	0	0		0	18	0	0
North Carolina:								
Raleigh	1	0	0		0	1	0	0
Wilmington	3	0	1		0	1	0	3
Winston-Salem	3	0	0		0	15	1	3
South Carolina:								
Charleston	3	0	0	7	0	0	0	1
Columbia	1	0	0		0	2	0	0
Greenville	0	6	0		0	0	0	0
Georgia:								
Atlanta	0	1	1	4	0	0	0	5
Brunswick	0	0	0		0	0	0	1
Savannah	0	0	0	12	0	9	0	3
Florida:								
Miami	0	0	1		0	1	0	1
Tampa	0	0	1		0	0	0	0

[1] Nonresident.

City reports for week ended July 9, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL								
Kentucky:								
Covington	---	0	---	---	---	---	---	---
Tennessee:								
Memphis	5	0	0	---	1	---	0	0
Nashville	0	0	0	---	0	0	0	0
Alabama:								
Birmingham	3	1	1	---	0	0	0	1
Mobile	0	0	0	---	0	0	0	3
Montgomery	0	0	0	---	---	0	0	---
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith	1	0	0	---	---	0	0	---
Little Rock	0	0	0	---	0	0	0	0
Louisiana:								
New Orleans	0	5	7	1	1	0	0	3
Shreveport	0	0	0	---	0	1	2	0
Oklahoma:								
Oklahoma City	0	0	0	7	---	0	0	1
Texas:								
Dallas	0	2	20	---	0	3	0	4
Fort Worth	2	1	1	---	1	0	0	1
Galveston	0	0	0	---	0	0	0	3
Houston	0	2	5	---	0	6	0	4
San Antonio	0	1	0	---	0	0	0	3
MOUNTAIN								
Montana:								
Billings	0	0	0	---	0	0	0	0
Great Falls	0	0	0	---	0	1	0	0
Helena	0	0	0	---	0	0	0	0
Missoula	0	0	0	---	0	0	0	0
Idaho:								
Boise	0	0	0	---	0	0	0	0
Colorado:								
Denver	14	5	2	---	0	27	12	4
Pueblo	6	0	0	---	0	0	0	0
New Mexico:								
Albuquerque	0	0	0	---	0	0	1	0
Utah:								
Salt Lake City	22	2	0	---	1	3	9	1
Nevada:								
Reno	0	0	0	---	0	0	0	0
PACIFIC								
Washington:								
Seattle	24	1	0	---	---	4	1	---
Spokane	10	1	0	---	---	18	0	---
Tacoma	2	2	0	0	0	15	0	3
Oregon:								
Portland	2	3	0	---	0	15	0	1
Salem	0	0	0	---	0	1	0	0
California:								
Los Angeles	49	20	3	21	0	23	16	8
Sacramento	1	2	2	---	0	2	0	0
San Francisco	---	6	---	---	---	---	---	---

City reports for week ended July 9, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	1	2	0	0	0	0	1	0	0	6	15
New Hampshire:											
Concord	0	0	0	0	0	0	0	0	0	0	12
Manchester	0	1	0	0	0	0	0	0	0	0	9
Nashua	0	0	0	0	0	0	0	0	0	0	------
Vermont:											
Barre	0	------	0	------	------	------	0	------	------	------	------
Burlington	0	0	0	0	0	0	0	0	0	3	8
Massachusetts:											
Boston	32	62	0	0	0	8	1	[1]2	0	35	177
Fall River	2	4	0	0	0	1	0	0	0	1	27
Springfield	2	1	0	0	0	1	0	0	0	5	32
Worcester	4	4	0	0	0	2	0	0	0	10	34
Rhode Island:											
Pawtucket	0	0	0	0	0	0	0	0	0	0	8
Providence	5	6	0	0	0	1	0	0	0	13	44
Connecticut:											
Bridgeport	2	2	0	0	0	2	0	0	0	5	24
Hartford	2	1	0	0	0	1	0	0	0	6	29
New Haven	1	2	0	0	0	1	0	0	0	12	22
MIDDLE ATLANTIC											
New York:											
Buffalo	11	16	0	0	0	6	0	0	0	23	115
New York	81	84	0	0	0	75	12	8	1	93	1,210
Rochester	5	28	0	0	0	2	0	0	0	3	58
Syracuse	3	7	0	0	0	0	0	0	0	47	43
New Jersey:											
Camden	2	6	0	0	0	0	0	0	0	3	22
Newark	10	8	0	0	0	6	1	1	0	13	69
Trenton	1	2	0	0	0	3	0	0	0	0	35
Pennsylvania:											
Philadelphia	40	32	0	0	0	26	2	3	0	54	398
Pittsburgh	17	0	0	0	0	5	1	0	0	0	121
Reading	2	3	0	0	0	2	0	0	0	20	21
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	8	13	0	0	0	9	1	0	0	0	122
Cleveland	17	14	1	0	0	19	1	1	0	34	162
Columbus	3	0	0	0	0	2	0	1	0	3	63
Indiana:											
Fort Wayne	1	1	0	0	0	0	0	0	0	1	23
Indianapolis	4	0	4	0	0	4	0	0	0	20	------
South Bend	1	0	0	0	0	0	0	0	0	1	22
Terre Haute	0	0	0	0	0	0	0	0	0	0	20
Illinois:											
Chicago	68	66	2	0	0	49	8	6	2	43	593
Springfield	0	2	0	0	0	0	0	1	0	2	13
Michigan:											
Detroit	50	80	1	0	0	16	2	6	1	105	217
Flint	7	1	0	0	0	3	0	0	0	4	20
Grand Rapids	5	0	0	0	0	0	0	0	0	16	19
Wisconsin:											
Kenosha	0	1	0	0	0	0	0	1	0	5	------
Madison	4	0	0	0	------	------	0	0	------	13	------
Milwaukee	12	7	0	0	0	7	0	1	0	34	77
Racine	2	0	0	0	0	1	0	0	0	0	14
Superior	1	0	0	0	0	0	0	0	0	2	4
WEST NORTH CENTRAL											
Minnesota:											
Duluth	4	1	0	0	0	0	0	0	0	0	23
Minneapolis	14	11	0	0	0	2	0	1	0	2	71
St. Paul	8	5	0	0	0	0	1	0	0	28	89

[1] Nonresidents.

City reports for week ended July 9, 1932—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST NORTH CENTRAL—continued											
Iowa:											
Des Moines	2	0	1	0			0	0		0	22
Sioux City	1	0	0	1			0	0		2	
Waterloo	0	0	1	0			0	0		2	
Missouri:											
Kansas City	4	2	1	0	0	3	1	2	0	4	73
St. Joseph	0	0	0	0	0	1	0	0	0	1	29
St. Louis	15	4	0	0	0	3	3	3	0	15	152
North Dakota:											
Fargo	0	0	0	0	0	0	0	0	0	0	5
Grand Forks	0	0	1	0			0	0		0	
South Dakota:											
Aberdeen	0	0	0	0			0	0		1	
Sioux Falls	0	0	0	0			0	0		0	8
Nebraska:											
Omaha	1	1	1	0	0	0	0	0	0	5	37
Kansas:											
Topeka	1	0	0	0	0	0	0	0	0	38	7
Wichita	1	0	0	0	0	1	1	0	0	6	32
SOUTH ATLANTIC											
Delaware:											
Wilmington	1	0	0	0	0	0	0	0	0	4	27
Maryland											
Baltimore	13	14	0	0	0	9	3	2	0	42	149
Cumberland	0	0	0	0	0	0	0	0	0	0	9
Frederick	0	0	0	0	0	0	0	0	0	0	2
District of Col.:											
Washington	8	4	0	0	0	10	0	3	0	13	142
Virginia:											
Lynchburg	0	0	0	0	0	0	0	0	0	44	10
Richmond	1	1	0	0	0	3	1	1	0	0	56
Roanoke	0	0	0	0	0	3	0	0	0	0	16
West Virginia:											
Charleston	0	0	0	0	0	0	0	0	0	0	21
Huntington		0		0	0	4		2	0	0	
Wheeling	1	1	0	0	0	0	1	0	0	7	6
North Carolina:											
Raleigh	0	0	0	0	0	0	0	0	0	7	17
Wilmington	0	0	0	0	0	0	0	1	0	0	9
Winston-Salem	0	0	0	0	0	0	1	0	0	12	14
South Carolina:											
Charleston	0	2	0	0	0	0	1	2	1	0	32
Columbia	0	0	0	0	0	0	1	0	0	0	
Greenville	0	0	0	0	0	0	0	0	0	0	
Georgia:											
Atlanta	2	0	1	0	0	3	3	1	0	5	59
Brunswick	0	0	0	0	0	1	1	0	0	6	6
Savannah	0	0	0	0	0	2	2	1	0	4	39
Florida:											
Miami	0	0	0	0	0	1	1	0	0	0	21
Tampa	0	0	0	0	0	0	1	1	0	0	20
EAST SOUTH CENTRAL											
Kentucky:											
Covington	0		0				0				
Tennessee:											
Memphis	2	0	0	0	0	8	5	8	0	3	101
Nashville	0	0	0	0	0	5	3	2	0	7	56
Alabama:											
Birmingham	1	0	0	0	0	6	2	0	0	2	54
Mobile	0	0	0	1	0	1	1	1	0	0	26
Montgomery	0	0	0	0			1	0		0	

City reports for week ended July 9, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	0	0	0			0	1		0	
Little Rock	0	1	0	0	0	1	1	1	[1] 1	0	2
Louisiana:											
New Orleans	3	1	0	0	0	9	3	1	0	1	142
Shreveport	0	0	0	0	0	2	1	2	0	1	15
Oklahoma:											
Oklahoma City	1	4	0	0	0	3	2	3	0	6	28
Texas:											
Dallas	2	1	0	0	0	3	2	3	0	16	61
Fort Worth	2	2	0	0	0	5	2	0	0	0	43
Galveston	0	0	0	0	0	2	0	1	0	0	16
Houston	1	0	0	0	0	6	1	4	0	0	66
San Antonio	1	0	0	0	0	5	0	1	0	0	68
MOUNTAIN											
Montana:											
Billings	0	0	0	0	0	0	0	0	0	0	5
Great Falls	0	0	0	0	0	1	0	0	0	0	8
Helena	1	0	0	0	0	0	0	0	0	0	6
Missoula	0	0	0	0	0	0	0	0	0	0	7
Idaho:											
Boise	0	0	0	5	0	0	0	0	0	0	6
Colorado:											
Denver	5	9	0	0	0	3	0	2	0	15	61
Pueblo	0	0	0	0	0	1	0	0	0	0	14
New Mexico:											
Albuquerque	0	0	0	0	0	2	0	0	0	4	8
Utah:											
Salt Lake City	1	1	0	0	0	0	0	0	0	8	17
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	3
PACIFIC											
Washington:											
Seattle	4	2	1	0			0	1		4	
Spokane	1	1	3	1			0	0		2	
Tacoma	1	3	2	1	0	1	0	0	0	0	21
Oregon:											
Portland	1	0	6	0	0	1	0	0	0	0	47
Salem	0	0	0	0	0	0	0	0	0	4	
California:											
Los Angeles	15	14	3	0	0	21	1	1	1	69	241
Sacramento	1	0	1	0	0	1	1	0	0	6	24
San Francisco	8		0				0				

[1] Nonresident.

City reports for week ended July 9, 1932—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
MIDDLE ATLANTIC									
New York:									
New York	6	1	0	0	0	0	4	1	0
New Jersey:									
Camden	0	0	0	0	0	0	0	3	0
Pennsylvania:									
Philadelphia	0	1	0	0	0	0	0	2	0
EAST NORTH CENTRAL									
Ohio:									
Cleveland	1	0	0	0	0	1	0	1	0
Columbus	0	0	0	0	0	0	0	1	1
Indiana:									
Indianapolis	1	0	0	0	0	0	0	0	0
Illinois:									
Chicago	0	0	0	0	0	0	1	1	0
Michigan:									
Detroit	1	0	0	0	0	0	0	0	0
SOUTH ATLANTIC [1]									
North Carolina:									
Raleigh	0	0	0	0	0	1	0	0	0
South Carolina:									
Charleston	0	0	1	0	0	3	0	1	0
Georgia:									
Atlanta	0	0	0	0	3	2	0	0	0
Savannah [1]	0	0	0	0	5	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis	0	0	0	0	1	0	0	0	0
Nashville	1	0	0	0	1	0	0	0	0
Alabama:									
Birmingham	0	1	0	0	0	0	0	1	0
Mobile [1]	0	0	0	0	0	2	0	0	0
WEST SOUTH CENTRAL [1]									
Louisiana:									
Shreveport	0	0	0	0	0	1	0	0	0
Oklahoma:									
Oklahoma City	0	0	0	0	0	0	0	1	0
PACIFIC									
Oregon:									
Portland	1	1	0	0	0	0	0	0	0
California:									
Los Angeles	0	0	0	0	0	0	2	1	0

[1] Typhus fever, 4 cases: 1 case at Savannah, Ga., 1 case at Miami, Fla., 1 case at Mobile, Ala.; and 1 case at Fort Worth, Tex.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended July 9, 1932, compared with those for a like period ended July 11, 1931. The population figures used in computing the rates are estimated mid-year populations for 1931 and 1932, respectively, derived from the 1930 census. The 98 cities reporting cases have an estimated aggregate population of more than 34,000,000. The 91 cities reporting deaths have more than 32,400,000 estimated population.

Summary of weekly reports from cities, June 5 to July 9, 1932—Annual rates per 100,000 population, compared with rates for the corresponding period of 1931 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	June 11, 1932	June 13, 1931	June 18, 1932	June 20, 1931	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931
98 cities	[2] 42	54	47	66	[3] 36	54	[4] 44	[5] 47	[6] 31	43
New England	84	41	62	41	[7] 31	67	204	96	[8] 46	60
Middle Atlantic	31	55	50	65	38	47	27	53	28	50
East North Central	[2] 34	64	34	89	30	72	[9] 24	49	23	41
West North Central	59	61	64	52	[10] 63	42	59	33	40	31
South Atlantic	27	49	22	44	27	45	[11] 28	[11] 12	31	18
East South Central	6	18	6	6	[12] 25	23	12	12	[12] 6	23
West South Central	89	27	76	85	[13] 73	68	89	27	106	61
Mountain	43	35	26	26	17	9	26	[14] 9	17	17
Pacific	59	53	67	71	[15] 11	51	34	51	[16] 13	44

MEASLES CASE RATES

	June 11, 1932	June 13, 1931	June 18, 1932	June 20, 1931	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931
98 cities	[2] 853	876	617	719	[3] 540	568	[4] 372	[5] 384	[6] 241	316
New England	1,177	601	1,059	635	[7] 1,001	438	630	402	[8] 561	351
Middle Atlantic	525	839	363	664	376	511	345	284	188	311
East North Central	[2] 1,868	1,303	1,298	1,159	972	920	[9] 650	768	409	527
West North Central	176	448	136	331	[10] 109	297	57	140	74	103
South Atlantic	512	1,104	392	768	294	591	[11] 154	[11] 311	104	259
East South Central	23	828	35	852	[12] 12	593	0	352	[12] 0	117
West South Central	73	149	59	88	[13] 101	47	53	24	33	27
Mountain	465	705	612	609	543	479	431	[14] 215	267	122
Pacific	611	580	394	302	[15] 613	363	227	149	[16] 156	182

SCARLET FEVER CASE RATES

	June 11, 1932	June 13, 1931	June 18, 1932	June 20, 1931	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931
98 cities	[2] 278	269	252	222	[3] 176	168	[4] 137	[5] 105	[6] 84	79
New England	410	291	417	272	[7] 343	238	280	188	[8] 202	142
Middle Atlantic	377	318	321	280	211	195	168	135	82	89
East North Central	[2] 354	386	344	310	208	240	[9] 168	122	110	90
West North Central	102	168	44	132	[10] 63	78	63	31	45	44
South Atlantic	120	123	102	77	90	93	[11] 58	[11] 55	43	49
East South Central	46	170	12	94	[12] 19	65	29	47	[12] 0	53
West South Central	23	88	13	30	[13] 56	30	36	41	10	34
Mountain	190	96	164	78	155	96	52	[14] 36	86	52
Pacific	80	80	126	57	[15] 42	57	53	47	[16] 50	49

SMALLPOX CASE RATES

	June 11, 1932	June 13, 1931	June 18, 1932	June 20, 1931	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931
98 cities	[2] 3	10	3	7	[3] 2	8	[4] 2	[5] 6	[6] 1	2
New England	0	0	0	5	[7] 0	0	0	0	[8] 0	2
Middle Atlantic	0	1	0	0	0	1	0	0	0	0
East North Central	[2] 1	12	1	5	1	5	[9] 1	8	0	1
West North Central	19	36	9	29	[10] 6	19	2	10	2	4
South Atlantic	0	0	0	14	0	12	[11] 0	[11] 0	0	4
East South Central	6	23	12	12	[12] 12	18	6	23	[12] 6	6
West South Central	3	24	0	20	[13] 0	30	3	24	0	10
Mountain	0	17	0	0	0	70	17	[14] 0	42	0
Pacific	11	25	17	16	[15] 23	6	10	14	[16] 5	8

See footnotes at end of table.

Summary of weekly reports from cities, June 5 to July 9, 1932—Annual rates per 100,000 population, compared with rates for the corresponding period of 1931—Continued

TYPHOID FEVER CASE RATES

	Week ended—									
	June 11, 1932	June 13, 1931	June 18, 1932	June 20, 1931	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931
98 cities	[2] 7	7	10	9	[3] 10	10	[4] 13	[5] 10	[6] 12	14
New England	7	0	5	10	[7] 18	0	5	10	[8] 5	2
Middle Atlantic	4	7	7	12	4	4	4	5	5	8
East North Central	[2] 1	4	4	4	5	6	[9] 10	3	10	5
West North Central	6	4	6	6	[10] 12	10	6	10	11	19
South Atlantic	27	14	29	14	37	16	[11] 42	[11] 10	24	28
East South Central	12	17	35	12	[12] 44	35	75	41	[12] 69	59
West South Central	10	24	16	14	[13] 21	54	56	71	46	81
Mountain	0	9	0	0	9	52	9	[14] 36	17	35
Pacific	15	12	15	10	[15] 8	14	4	4	[16] 5	6

INFLUENZA DEATH RATES

	June 11, 1932	June 13, 1931	June 18, 1932	June 20, 1931	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931
91 cities	[2] 4	4	5	7	[3] 6	4	[4] 3	[5] 3	[6] 2	3
New England	0	0	5	7	[7] 3	2	0	0	[8] 0	2
Middle Atlantic	7	4	5	8	7	2	4	1	2	4
East North Central	[2] 0	4	4	5	3	6	[9] 4	1	8	2
West North Central	3	6	6	6	[10] 9	0	0	9	0	0
South Atlantic	12	6	8	4	6	6	[11] 2	[11] 4	0	4
East South Central	6	13	0	0	[12] 7	6	13	19	- 7	6
West South Central	0	3	13	14	[13] 14	7	0	10	8	7
Mountain	0	0	0	9	9	0	0	[14] 9	9	0
Pacific	2	5	2	5	[15] 6	2	2	5	[16] 0	0

PNEUMONIA DEATH RATES

	June 11, 1932	June 13, 1931	June 18, 1932	June 20, 1931	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931
91 cities	[2] 73	75	62	70	[3] 57	67	[4] 53	[5] 64	[6] 50	59
New England	89	60	79	65	[7] 65	60	62	36	[8] 53	79
Middle Atlantic	92	88	75	72	61	76	61	67	63	59
East North Central	[2] 46	60	42	60	43	51	[9] 34	61	32	47
West North Central	70	71	52	106	[10] 53	38	64	77	35	88
South Atlantic	96	83	76	89	73	103	[11] 52	[11] 67	67	71
East South Central	31	146	13	83	[12] 55	140	31	83	[12] 27	51
West South Central	94	79	81	76	[13] 61	90	91	90	57	86
Mountain	52	70	52	78	60	35	60	[14] 72	43	61
Pacific	44	43	53	34	[15] 54	41	44	46	[16] 36	31

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1932 and 1931, respectively.

[2] Springfield, Ill., not included.

[3] Hartford, Conn., Wichita, Kans., Covington, Ky., Little Rock, Ark., and Los Angeles, Calif., not included.

[4] Fort Wayne, Ind , and Columbia, S C., not included.

[5] Columbia, S. C., and Billings, Mont., not included

[6] Barre, Vt., Covington, Ky., and San Francisco, Calif., not included.

[7] Hartford, Conn., not included.

[8] Barre, Vt., not included.

[9] Fort Wayne, Ind., not included.

[10] Wichita, Kans , not included.

[11] Columbia, S. C., not included.

[12] Covington, Ky., not included.

[13] Little Rock, Ark., not included.

[14] Billings, Mont., not included.

[15] Los Angeles, Calif., not included.

[16] San Francisco, Calif., not included.

FOREIGN AND INSULAR

CANADA

Ontario—Communicable diseases—Comparative—Four weeks ended June 25, 1932.—The Department of Health of the Province of Ontario, Canada, reports certain communicable diseases for the four weeks ended June 25, 1932, and the corresponding period of 1931, as follows:

Disease	Four weeks, 1932		Four weeks, 1931	
	Cases	Deaths	Cases	Deaths
Cerebrospinal meningitis	2	1	10	5
Chicken pox	970		812	
Conjunctivitis			2	
Diphtheria	94	7	110	9
Dysentery				1
German measles	15		96	
Gonorrhea	213		121	
Influenza		2	3	2
Lethargic encephalitis	3	2		
Measles	3,753		770	1
Mumps	979	1	291	
Paratyphoid fever	7		9	
Pneumonia		77		90
Poliomyelitis	2	1	3	2
Puerperal septicemia		1		
Scarlet fever	217		449	5
Septic sore throat	6	1	1	1
Smallpox			21	
Syphilis	189	2	86	2
Tetanus	1			1
Trench mouth	2			
Tuberculosis	203	2	156	38
Tularaemia	4			
Typhoid fever	30		43	
Undulant fever	4		10	
Whooping cough	455	2	271	

Quebec Province—Communicable diseases—Week ended July 2, 1932.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended July 2, 1932, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	1	Poliomyelitis	2
Chicken pox	40	Puerperal fever	2
Diphtheria	19	Scarlet fever	46
Erysipelas	4	Tuberculosis	62
Lethargic encephalitis	1	Typhoid fever	50
Measles	33	Whooping cough	26

GERMANY

Vital statistics—1930.—During the year 1930, births, deaths, infant mortality, and marriages were reported in Germany as follows:

Births	1,126,829
Birth rate per 1,000 population	17.5
Deaths	710,905
Death rate per 1,000 population	11.1
Infant mortality rate per 1,000 live births	84
Marriages	562,491

Death rates per 10,000 population from certain causes in communes of more than 15,000 inhabitants for the year 1930 are given in the following table:

Disease	Death rate per 10,000 population	Disease	Death rate per 10,000 population
Apoplexy	7.8	Pneumonia	7.0
Cancer and other growths	13.1	Other respiratory diseases	2.9
Diphtheria	1.1	Scarlet fever	.2
Grippe	.8	Tuberculosis	7.8
Heart disease	13.7	Whooping cough	.3
Measles	.2		

HAWAII TERRITORY

Influenza.—According to information dated July 18, 1932, there was a marked decline in the number of cases of influenza occurring in Honolulu, Hawaii Territory. Two hundred and ninety-three cases were reported for the week ended July 16, as compared with 570 for the preceding week. The island of Kauai showed an increase, with 377 cases reported for the week ended July 16, as compared with 211 for the preceding week. There was a slight increase on the island of Hawaii, 55 cases being reported for the week. Maui and Molokai were said to be only slightly affected. The disease continued to be of a mild type, with very few fatalities.

VIRGIN ISLANDS

Notifiable diseases—June, 1932.—During the month of June, 1932, cases of certain diseases were reported in the Virgin Islands as follows:

Disease	Cases	Disease	Cases
St. Thomas and St. John:		St. Croix—Continued.	
Gonorrhea	1	Gonorrhea	3
Sprue	1	Malaria	9
Syphilis	5	Pellagra	2
Tuberculosis	2	Syphilis	1
St. Croix:		Tuberculosis	2
Chancroid	1		
Chicken pox	2		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place		Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Week ended— April, 1932 9	April 16	April 23	April 30	May, 1932 7	May 14	May 21	May 28	June, 1932 4	June 11	June 18	June 25	July, 1932 2	July 9
China:																		
Amoy	C														3		15	
	D														2		11	
Canton	C			2			1				1	1	2	49	330	298	203	
	D										1		1	22	152	90	73	
Hankow	C	1	1				3			8					6	10		
	D						1			3								
Hong Kong	C															9	45	33
	D															9	18	33
Kwantung	C																P	
Nanking	C														123	131	104	
	D														45	34	22	
Newchwang	C															1	5	
	D																4	
Shanghai	C								11	11	8	40	92	90	130	276	314	
	D									1	1	1	10	9	23	11	20	
Swatow	C										1			1		49	48	
	D															3	3	
Tientsin	C													3	16	22		
	D														5	3		
India	C	10,001	5,826	4,952	1,519	1,432	1,709	1,635	1,497	1,126	923							
	D	5,267	2,788	2,358	780	719	863	832	731	592	400							
Bombay	C		1															1
	D		1															1
Calcutta	C	133	1,118	162	53	114	53	130	174	228	141	106	79	63	106	132	143	
	D	70	54	73	25	56	25	42	58	125	79	59	38	27	51	70	60	
Chittagong	C	6	1	2														
	D	1	22	1														
Madras	C		3	6														
	D		3	3														
Rangoon	C										1				1	2		
	D										1				1	1		

Place																		
India (French):																		
Chandernagor	C								11		3	5						
	D								5		2	5						
Karikal	C	35	2															
	D	17																
Pondicherry Territory	C	15		2														
	D	15		2														
Pondicherry	C			1														
	D			1														
Indo-China (see also table below):																		
Pnompenh	C	2			1						1		1		1	1		
	D	2			1						1		1		1	1		
Saigon and Cholon	C	1	1	1			1	1	1	1	2	2	2	2	1	1	1	
	D						1	1	1	1	2	2	1	1	1	1	1	
Japan:																		
Kobe	C													1				
Tokyo	C													1	2			
Persia: Kouh Bezman	C							[1] 1										
Philippine Islands: Capiz Province	C	22	23															
	D	20	20															
Siam	C	1		1	1	1					8		8					
	D	1		2		1					7		4					
Bangkok	C	1		2	1													
	D	1		1														
On vessels:																		
S. S. Angora at Rangoon from Calcutta	C			1														
S. S. Narbada at Rangoon from Calcutta	C				1													
	D				1													
S. S. Shanghai Maru at Kobe from Shanghai	C												1					
S. S. President Wilson enroute to Manila from Honolulu via Shanghai and Hong Kong	C															2		
	D															1		

Place		November, 1931	December, 1931	January, 1932	February, 1932			March, 1932			April, 1932			May, 1932		
					1-10	11-20	21-29	1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20	21-31
Indo-China (French) (see also table above):																
Annam [2]	C				4									93	20	21
	D				4									7	2	6
Cambodia [2]	C	4	3	12	3	2		6	1	3	4	1	20	12	6	
	D		2	6	2	2		3	1	1	3		8	2	1	
Cochin-China [2]	C	6	14	5	7		P	3	2	4	3	6	18	11	30	
	D	4	7	4	5			2	1	2	2	3	13	8	21	
Laos [2]	C										7					
	D										3					

[1] A suspected case.

[2] Reports incomplete.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE[1]

[C indicates cases; D, deaths; P, present]

Place		Jan. 10–Feb. 6, 1932	Feb. 7–Mar 5, 1932	Mar. 6–Apr. 2, 1932	Week ended— April, 1932: 9	16	23	30	May, 1932: 7	14	21	28	June, 1932: 4	11	18	25	July, 1932: 2	9
Argentina:																		
Cordoba Province[1]	C	1				2												
Rosario	D											1						
San Luis Province	C													1	1			
Belgian Congo	C											2						
British East Africa (see also table below):																		
Tanganyika	C	10		2														
	D	10																
Uganda	C	31	8	4	1	7	13	18	11	9	6	11						
	D	26	6	4	1	6	11	18	7	8	6	10						
Canary Islands: Palma Islands—Los Lanos	C	8								1								
	D	8																
Ceylon: Colombo	C	5	4	3		1		1	1	3		2	5	3	3	2	5	
	D	3	3	3		1		1	1	1		2	5	3	3	2	5	
Plague-infected rats		1		1				1	5	2	2		4					
China:																		
Kwang Chow Wan	C			8														
	D			8														
Shensi Province	C		P															
Dutch East Indies:																		
Java—																		
Surabaya	C	2																
	D	2																
Tegal	C		1															
Java and Madura	D	499	459	362	98	75	95	97	70	62	76	71						
West Java	C	201	141	213	68	52	64	55			41	44						
	D	200	139	213	68	52	63	54			41	43						
Ecuador (see table below).																		
Egypt:																		
Alexandria	C	2		2					1	2	1	8	1	2		1	3	1
	D									2		1	2	1	1		1	1
Assiout	C	1																
	D	1																
Beheira	C	11						1	2				1	1				
	D	2						1	3				1					
Beni Suef	C						4	33	2									
	D							8	3									

Gharbieh	C												2		1			
	D													1				
Minieh	C	1		3														
	D	1		3														
Tanta	C	1																
	D	1																
Hawaii Territory:																		
Hawaii Island—																		
Hamakua—																		
Honokaa	C		2															
	D		2															
Plague-infected rats			1															
Kukaiau—Plague-infected rats												1	1					
Maui Island—																		
Makawao	C		1															
	D		1															
Plague-infected rats			4															
India	C	7,892	8,593	9,724	1,804	1,400	1,279	714	684	474	256							
	D	3,971	4,970	5,543	1,065	852	859	443	505	360	203							
Bassein	C	1	4	9	4			1	2					2		1		
	D		4	7	3		1		2					2		1		
Bombay	C		5	8	6	3	5	5	2	2	1		1					
	D		5	6	5	3	5	2	1	2	1		1					
Plague-infected rats		57	109	117	30	23	35	34	25	21	1	11	3		9	11		
Madras	C						[3] 1											
	D						1											
Madras Presidency	C	2,951	70	158	42	16	11		18	5	6	11						
	D	155	47	86	14	6	4		4	4	1	2						
Rangoon	C		9	4	4	1	1	1				1				1	2	
	D	1	8	4	4	1		1									2	
Plague-infected rats			2	8	4			1		2		1		1		2	2	
Indo-China (see table below).																		
Iraq: Baghdad	C	5	3													1		
	D		1															
Peru (see table below).																		
Senegal (see table below).																		
Siam	C	1	1	7														
	D	1		3														
Southwest Africa.[4]																		
Syria: Beirut	C				1			1							1		2	
Union of South Africa: Orange Free State	C	P	P	P														
	D			10														
United States: California—Los Angeles—																		
Plague-infected rats					1				2					1				
On vessel:																		
Steamship Columbia, at Naples, from Barcelona—Plague-infected rats																1		

[1] Including plague in the United States and its possessions.
[2] 10 cases of bubonic plague were reported in Cordoba Province, Argentina, in January, 1932. They were distant from railroad and 500 kilometers from ports.
[3] An imported case.
[4] 80 cases of plague with 15 deaths were reported in Ovamboland, Southwest Africa, up to Apr. 30, 1932. Antiplague measures have been taken.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place		January, 1932	February, 1932	March, 1932	April, 1932	May, 1932	June, 1932
British East Africa (see also table above) Kenya	C	17	33	22	18	11	
Ecuador:							
Province—							
Chimborazo	C	8	13		6	10	2
Loja	C	11					
Indo-China	C	17	P	P	9	2	
	D	9			6	1	
Madagascar:							
Province—							
Ambatolampy	C	23	40	25			
	D	23	38	25			
Ambositra	C	166	90	81	19		
	D	152	81	67	17		
Antsirabe	C	53	45	54	21		
	D	51	45	53	21		
Maevatanana	C			4			
	D			4			
Miarinarivo	C	15	13	9	6		
	D	15	12	9	6		
Moramanga	C	13	9	3			
	D	13	9	3			
Tananarive	C	203	148	71	42		
	D	196	140	70	40		

Place		January, 1932	February, 1932	March, 1932	April, 1932	May, 1932	June, 1932
Peru	C	11	2				
	D	8	2				
Department—							
Canete	C	3					
Lambayeque	C						2
Libertad	C	1			28	33	
Otuzco	C					1	
Lima	C	6		1			
Lima	C		1	1	1	1	
	D		1				
Piura	C	1					
Senegal							
Dakar [5]	C			10			
	D			5			
Louga [5]	C					3	
	D					2	
Rufisque [5]	C					3	6
	D					3	6
Yombel [5]	C			9			
	D			5			

[5] Reports incomplete.

SMALLPOX

Place		Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Week ended— April, 1932: 9	16	23	30	May, 1932: 7	14	21	28	June, 1932: 4	11	18	25	July, 1932: 2	9
Aden	C	2		1														
Algeria:																		
Algiers	C													1	1			
Constantine Department	C					1		1	1		1							
Philippeville	C							1										
Southern Territories	C		2															
Brazil:																		
Porto Alegre (alastrim)	C	34	19	5	2	1	2	3	2	2								
	D			1														
Santos	C	2																
British East Africa. Tanganyika	C	24	5	P					79	11								
	D	7	2															
British South Africa:																		
Northern Rhodesia	C	5																
Southern Rhodesia	C			4	1	6												
Canada:																		
British Columbia	C	25	17	9												1		
	D	4	9	3														
Manitoba	C	10				1												
Nova Scotia	C		1															
Ontario	C	6	21	4		2	4		1			23						
North Bay	C	1																
Quebec	C	1	8													1		
Saskatchewan	C	35	30	6		1	5	2	3	1	3	6		1		2		
China:																		
Amoy	C	183	121	45	7	5	4	1	3		2	3						
	D	91	44	25	4	3	3	1	2		2	2						
Canton	C	27	44	79	24	18	22	17	19	9	5	9	1	3	3	1		
	D		1	7			1		1									
Foochow	C	P	P	P		P		P		P		P		P				
Hankow	C	59	4	5	1		1	1	1	1	3							
	D	5	1															
Hong Kong	C	11	51	45	12	13	21	9	7	9	7	1	4	5	2	1	1	
	D	6	23	28	2	6	6	6	7	6	2	2	4	6	1	1	1	
Manchuria—Dairen	C	1	1	16	7		1		1		1				3			
Shanghai	C	163	167	102	22	24	22	22	16	6	5	6	3	3				
	D	62	67	45	7	10	8	10	6	5		2	1	2				

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Week ended— April, 1932 9	April 16	April 23	April 30	May, 1932 7	May 14	May 21	May 28	June, 1932 4	June 11	June 18	June 25	July, 1932 2	July 9
China—Continued.																		
Swatow	C		1															
Tientsin	C	1	2	8	1	1			1				2					
	D		1	1														
Chosen (see table below).																		
Dahomey	C			6	3			2	2					15		9		
	D			1	1									6		1		
Dutch East Indies: Batavia	C	1																
	D	1																
Egypt:																		
Alexandria	C			1						1	1				1			
Cairo	C	1																
Suez	C		2	20	1	1	2		1									
	D			3														
Finland	C											1						
France (see table below).																		
Germany: Aix-la-Chapelle	C	1																
Gold Coast (see table below).																		
Great Britain:																		
England and Wales	C	227	258	273	70	87	96	62	68	76	56	68	49	36	25	30	22	
London	C	100	136	129	30	25	48	34	41	39	25	29	49	18	15	18	19	
London and Great Towns	C	188	203	236	57	63	86	51	59	60	47	52	37	31	37	23	21	
Greece (see table below).																		
Guatemala (see table below).																		
Honduras.[3]																		
Ceiba	D		1	2	1			1										
Puerto Castilla	C	1	4					4			1	P			2			
Tegucigalpa	C		5															
Tela	C			2	2							1						
Trujillo	C		35															
	D		5															

India	C	4,576	9,709	12,040	4,093	3,431	3,083	3,120	4,230	3,388	2,771							
	D	970	1,896	2,234	783	705	665	742	996	796	676							
Bassein	C	3			1													
	D				1													
Bombay	C	6	23	27	7	7	8	3	10	12	2	12	7	4	5	6	5	
	D	2	10	12	2	3	5		2	4	1	5	4	2	3	4	3	
Calcutta	C	27	102	159	38	19	40	36	17	35	22	19	15	16	21	12	12	
	D	15	54	115	30	11	22	36	12	29	16	10	17	14	8	8	9	
Chittagong	C			2						2								
	D			1						1								
Cochin	C	1	9	3	1													
Karachi	C	18	23	19	6	4	10	9	4	5	3	4	7	5	3	5	1	
	D	6	8	8	2		2	5		2	1	3	1	1	1	1		
Madras	C	9	15	51	15	20	13	10	17	10	10	10	3	8	5	6	8	
	D	3	4	16	4	2	2	3	2	4	2	3		3	2	3	2	
Moulmein	C	4	4	7	1									5				
Negapatam	C		1	1							1	2						
	D	1									1							
Rangoon	C	147	418	606	116	71	32	41	18	26	13	9	6	10	5	8	8	
	D	40	127	179	32	28	12	16	9	11	6	2	4	4	1	2	2	
Tuticorin	C	28	36	14		3		2	4						1			
	D	2	8	9		1		2	5						1			
Vizagapatam	C		3	2													1	
India (French):																		
Karikal	C	1	4	19	3	15	1	2	2	4	1	4		2				
	D	1	4	9	3	6	1	2	2	2	1	2		1				
Pondicherry Territory	C	32	20	29	3	10	6	3	3	5	28	11		4	2	1	3	
	D	27	20	26	2	8	6	3	3	5	28	11		4	2	1	3	
Indo-China (see also table below):																		
Pnompenh	C	1	2	1														
Saigon and Cholon	C	117	145	212	33	35	32	13	12	8	8	5	3	3	3	9	2	
	D	92	85	174	30	32	27	12	11	7	7	5	3	3	2	9	2	
Iraq:																		
Baghdad	C	10	4	20		5	10	12	4	7	10		14	9	3	1		
	D	13	4	10		2	5	6	2	3	3		6	4	2			
Basra	C	2	2	11	1	1	1	1	1	1	4	2	2	4	2			4
	D					1	2	1		1	1	1	1		1			1
Ivory Coast (see table below).																		
Japan:																		
Kobe	C		1	2		1				1	7	2						
	D			1								1						
Nagasaki	C								1	4	4	4	1	1	1			
Osaka Prefecture [2]	C						3	90	34	48								
Osaka	C									1								
Taiwan	C	35	58	1			1											
Yokohama	C	2																

[1] 590 cases of smallpox with 15 deaths were reported in Honduras from July, 1931, to Feb. 16, 1932.
[2] Two hundred and sixty-four cases of smallpox were reported in Osaka Prefecture, Japan, from Mar. 1 to May 28, 1932.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued.

[C indicates cases; D, deaths; P, present]

Place		Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Week ended— April, 1932				May, 1932				June, 1932				July, 1932	
					9	16	23	30	7	14	21	28	4	11	18	25	2	9
Mexico (see also table below):																		
Chihuahua	D		3	1	1						1			5				
Durango	D				1													
Jalisco (State)—Guadalajara	D	3		1			1	1		1	1		1	1				
Mexico City and surrounding territory	C	14	33	6	2	5	6	3	3	2	3	9	4	7				
	D		1				1	1		1								
Monterrey	C	1	8	1		1	1		1			1						
Saltillo	D										1	2	2				2	1
San Luis Potosi	D	5	2	3		1	1		1			1		1				
Torreon	C	6	2	2	1			2		1	1	1	1	1	1			
	D	2	3	2	1			2		3			1			1		
Morocco (see table below).																		
Nigeria	C	217	46	750			82	34		939								
	D	120	2	111			6	13		316								
Palestine	C									1								
Poland	C									1			1					
Portugal:																		
Lisbon	C	98	50	38	5	11	4	6	10	5	8	6	2	5	6	12	1	
Oporto	C	3	14	14	10	6		5	3	5	8	8	4	9	8	2	8	
Salvador	C		85	10														
Siam	C	1		2								1	3	1				
Sierra Leone [4]	D												4	1				
Straits Settlements	C	4	6	1														
	D	1		2														
Sudan (Anglo-Egyptian)	C	3	8	4		1		2						1	1	1		
	D	1	1															
Sweden: Malmo	C	9																
Syria (see table below).																		
Tunisia: Tunis	C			1														
Turkey (see also table below). Istanbul	C		1			1				1								
Union of South Africa																		
Cape Province	C				P	P	P	P	P	P	P	P						
Orange Free State	C					P	P	P										
Transvaal	C			P				P	P		P	P						

On vessels:																		
S. S. Cressington Court at Yokohama from Shanghai	C	1																
S. S. Bollington Court at Yokohama from Shanghai	C	1																
S. S. Victoria City at Brisbane from Shanghai	C	1																
S. S. Frauenfels at Suez from Calcutta	C			1														
S. S Uwajima Maru at Osaka from Shanghai	C	1																
S. S. Hong Kheng at Singapore from Amoy, via Swatow and Hong Kong	C	1																
S. S. Hai Ning and S. S. Solviken at Hong Kong	C	P																
S. S. Merkara at Aden from Colombo	C	2																
S. S. Tjisadane at Hong Kong from Shanghai and Amoy	C	P																
S. S. Poafung at Shanghai	C	1																
S. S. Rajula at Penang from Negapatam	C	P																
S. S MacGillivary at Suez from Rangoon	C			[5] 1														
S. S Tainui at Southampton from New Zealand	C			[5] 1														
S. S. Glenbank at Suez from Aden	C			1														
S. S. Tuscania at Suez from Bombay	C										1							

Place		December, 1931	January, 1932	February, 1932	March, 1932	April, 1932			May, 1932			June 1-10, 1932
						1-10	11-20	21-30	1-10	11-20	21-31	
Gold Coast	C		2									
	D		1									
Indo-China (see also table above)	C	509	309	660	727	175	247	146	211	78		
	D	93	148	231	342	80	97	64	46	37		
Ivory Coast	C											19
	D											1
Syria: Beirut	C		5			1		1				

[4] From Mar. 6 to Apr. 30, 1932, 551 cases of smallpox with 6 deaths, were reported in Sierra Leone.
[5] A suspected case.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths, P, present]

Place		November, 1931	December, 1931	January, 1932	February, 1932	March, 1932	April, 1932	May, 1932
Chosen	C	2	1	1	6	30	55	
	D				3	9	5	
France	C	6	1					
Greece	C					1	8	
Guatemala	C			5				
	D			1				
Mexico (see also table above)	D	419	423					
Morocco	C	152	279	488	368	303	101	101
Turkey (see also table above)	C			31	22	2		
	D			1	1			

TYPHUS FEVER

Place		Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Week ended— April, 1932: 9	16	23	30	May, 1932: 7	14	21	28	June, 1932: 4	11	18	25	July 2, 1932
Algeria:																	
Algiers	C	1	3	7		8	9	23	7	23	31		8	5	5	12	33
Constantine Department	C	7		7									1				
Geryville	C	7	1														
Oran	C			1								4	10				
Bulgaria	C	44	66	44	15	6	15	9	10	7	16	5	4	5	3		
	D	6	6	2		3	4	2		2	1		1		1		
Chile:																	
Antofagasta	C	1									1						
Iquique	C													1			
Santiago	C			1		1											
China:																	
Hankow	C			5						1		1					
Swatow	C		2														
Tientsin	C									1							
Chosen (see table below).																	
Colombia: Cali	D		1														

Czechoslovakia (see table below).																	
Egypt:																	
Alexandria	C		1		5	2	7					1	5	2		1	
Beheira	C		70	46				5									
	D		16					1									
Dakahlia	C										69						
Gharbieh	C		12					5									
	D							2									
Port Said	C												1				
Provinces	C	43	333	676	112	49	41	20	27	38	38	60	139				
	D	3	25	49	18	9	12	4	6	1	1		10				
Greece (see table below).																	
Irish Free State																	
Roscommon County—																	
Leitrim	C										1						
	D										1						
Roscommon	C												1				
Latvia (see table below)																	
Lithuania (see table below).																	
Mexico:																	
Mexico City, including municipalities in Federal District	C	25	20	7	8	2	3	3	2		5	1	2	4			
	D	9	12	4	1		2					2		1			
San Luis Potosi	D		1	1													
Morocco	C	6	59	29	9	7	3	15	3	7	7	2	13	5	4	4	
	D		6	6	1									3			
Palestine	C	3	1						1				2	1		1	
Paraguay Asuncion	D		1														
Persia	C											123	69				
	D											4	5				
Poland	C	265	215	255	85	95	119	115	70	106	106	98	83	77	21	23	38
	D	10	21	22	5	10	11	13	7	4	5	9	3	4	1	6	3
Portugal:																	
Lisbon	C												2	5			
Oporto	C	1	1		10				3				4				
Rumania	C	264	296	270	89	62	55	46	61	60	53	60					
	D	13	28	31	8	6	5	2	8	8		7					
Tunisia Tunis	C	1	24	81	32	6	20	19	26	15	13	1	13	9	6		
	D		3	8	4												
Turkey (see table below).																	
Union of South Africa.																	
Cape Province	C	P	P	P	P	P	P	P	P	P	P						
Natal	C		P				P	P	P								
Orange Free State	C	P	P	P	P	P	P	P	P	P	P						
Transvaal	C	P	P														
Venezuela Caracas (see table below).																	
Yugoslavia (see table below).																	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, deaths; P, present]

Place		December, 1931	January, 1932	February, 1932	March, 1932	April, 1932	May, 1932
Chosen: Seoul	C			5	4		
	D			1			
Czechoslovakia	C	10	1			1	
	D	3					
Greece	C	6	4	4	7	1	
	D	1					
Latvia	C	12					

Place		December, 1931	January, 1932	February, 1932	March, 1932	April, 1932	May, 1932
Lithuania	C	20	21	10	32	25	13
	D	1	3	3	3	5	1
Turkey	C	21	14	22	6	1	
	D	2	3	1	3		
Venezuela: Caracas	D	1	2				
Yugoslavia	C	14	11	26	5	29	34
	D	1		2	1		6

YELLOW FEVER

Place		Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Week ended— April, 1932: 9	16	23	30	May, 1932: 7	14	21	28	June, 1932: 4	11	18	25	July 2, 1932
Brazil:																	
Bahia State—Esplanada	C								P								
Ceara State	C							1									
	D							1									
Espirito Santo State	C			2	1	P	P	P									
	D			2	1												
Santa Teresa (about 56 miles from Victoria)	D		1														
Parahyba State	C															1	
	D															1	
Pernambuco State	D				1												1
Dahomey: Porto Novo	C			1													
	D			1													
Gold Coast:																	
Avudua	C			1	1												
Cape Coast	C			P													
Tamale	C			1													
Yapei	C		1														
Nigeria	C											1					

X

UNITED STATES TREASURY DEPARTMENT

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SPECIAL ARTICLES

Prevalence of Communicable Diseases in the United States

Mortality in the United States Registration Area, 1930

Birth and Mortality Rates, Birth Registration Area, 1930

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HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

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CONTENTS

PUBLIC HEALTH REPORTS

VOL. 47 AUGUST 5, 1932 NO. 32

CURRENT PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES [1]

June 19–July 16, 1932

The prevalence of certain important communicable diseases, as indicated by weekly telegraphic reports from State health departments to the United States Public Health Service, is summarized in this report. The underlying statistical data are published weekly in the Public Health Reports, under the section entitled "Prevalence of Disease."

Poliomyelitis.—As compared with the preceding 4-week period the number of cases of poliomyelitis reported for the current four weeks increased in the various regions as follows: New England and Middle Atlantic, from 27 to 47 cases; East North Central, from 26 to 30; West North Central, from 5 to 23; South Central, from 20 to 29; and Mountain and Pacific, from 14 to 28. One region, the South Atlantic, reported the same number of cases as for the preceding period. For the entire reporting area the number of cases totaled 173, about 60 per cent of the number reported for the same period last year, and less than 30 per cent of the number in 1930. For this period in 1929, a more nearly normal year, 132 cases were reported. Of the six geographic areas, only two reported an excess over last year.

Typhoid fever.—The number of cases of typhoid fever reported during the current 4-week period was more than twice the number reported for the preceding four weeks. Comparison with previous years shows that the incidence was the highest for the same period in four years. The number of cases was 2,814, as compared with 2,302, 2,092, and 2,047 for the same period in 1931, 1930, and 1929, respectively. Two geographic areas, the East North Central and South Central groups, seemed to be mostly responsible for the increase. In each of those groups an excess in the number of cases over last year of approximately 60 per cent was reported. The

[1] From the Office of Statistical Investigations, U. S. Public Health Service. The numbers of States included for the various diseases are as follows: Typhoid fever, 47; poliomyelitis, 48; meningococcus meningitis, 48; smallpox, 48; measles, 45; diphtheria, 47; scarlet fever, 47; influenza, 39 States and New York City. The District of Columbia is counted as a State in these reports.

incidence was also the highest in four years in each group. The other four areas reported decreases from last year's figure. The Mountain and Pacific reported the lowest incidence in four years.

Measles.—The measles incidence continued at about an average level during the current 4-week period. The reported cases totaled 26,835. With one exception, the East North Central, all geographic areas reported fewer numbers of cases than were reported for the same period last year. The number of cases (10,438) reported from the East North Central States was less than one-half the number reported for the preceding 4-week period. It was, however, one and four-tenths times the number reported in 1931 for this period, and one and nine-tenths times the figure for 1930. It closely approximated the number in 1929. For several months this area has reported the highest incidence of measles in four years.

Diphtheria.—There was very little change in the incidence of diphtheria in the various geographic areas during the current period, but the general trend was downward. For the country as a whole, the cases numbered 2,071, which was approximately 400, 1,000, and 1,400 less than were reported for the same period in 1931, 1930, and 1929, respectively. For the past five months the incidence of diphtheria has been the lowest in four years.

Scarlet fever.—The number of cases of scarlet fever (7,538) reported for the 4 weeks ended July 16 was less than 50 per cent of the number reported for the preceding 4-week period. In relation to preceding years, however, the incidence was the highest for this period in four years. The New England and Middle Atlantic States seem mostly responsible for this situation. For more than a year and a half scarlet fever has been unusually prevalent in that region. For the current period, 4,007 cases were reported, as compared with 3,141, 2,162, and 2,137 for the same period in the years 1931, 1930, and 1929, respectively. In all other regions, the incidence compares very favorably with preceding years.

Meningococcus meningitis.—Since the beginning of the current year, the country as a whole has maintained the lowest incidence of meningococcus meningitis in four years. The number of cases reported (141) for the 4 weeks ended July 16 was only about 58 per cent of last year's figure for the corresponding period. For this same period in 1930 and 1929 the number of cases was 347 and 610, respectively. A comparison of geographic areas shows that the situation in practically all areas was similar to that described for the country as a whole.

Smallpox.—The current reported incidence of smallpox (482 cases) was only about 29 per cent of last year's figure for the same period. All regions shared in this favorable situation. In fact, for the country as a whole and for each geographic area, except the New England and Middle Atlantic, the incidence for the current period continued

to be the lowest in four years. In the New England and Middle Atlantic group of States New York reported 15 cases for the current period, as against 1 case for the preceding 4-week period, and Vermont reported 3 cases as compared with 12 for the preceding period. The total number of cases (18) was only 13 per cent of the cases reported for the same period in 1931, and 30 per cent of the number in 1930, but it was twice the number reported in 1929.

Influenza.—The reported number of cases of influenza for the current 4-week period was 1,282, as compared with 765, 856, and 962 for the same period in the years 1931, 1930, and 1929, respectively. While the number of cases in any area was not large, each area, except the New England and Middle Atlantic, reported a larger number of cases than was reported for the same period last year. In fact, in the New England and Middle Atlantic States the incidence for this period was the lowest in four years, while in the other areas it was the highest in that many years.

Mortality, all causes.—The mortality in a group of large cities reporting to the Bureau of the Census averaged 10 per thousand population (annual basis) for the 4-week period ended July 16, as compared with 11.2 for the corresponding period last year. The average rate for this period for the preceding six years is 11.3.

MORTALITY IN THE UNITED STATES REGISTRATION AREA, 1930

The Department of Commerce announces that in the United States death registration area in 1930 there were 1,343,356 deaths, with a rate of 1,133.1 per 100,000 population. The number of deaths and the death rate per 100,000 for 1929 were 1,386,363 and 1,191.9, respectively. These rates are based on estimated populations of 118,560,800 in 1930 and 116,317,515 in 1929. The death registration area in 1930 comprised about 96.2 % of the total population.

The decrease, as compared with 1929, in the mortality for the whole registration area of the United States is caused almost entirely by the great reduction in the number of deaths from influenza, from 64,853 in 1929 to 23,066 in 1930, for which respective rates were 55.5 and 19.5 per 100,000 population, and pneumonia (all forms), from 106,597 to 98,657, the rates for which were 91.6 and 83.2. Whooping cough and diphtheria also decreased quite markedly, the former from 7,310 to 5,707 deaths and the rate from 6.3 to 4.8, while the latter decreased from 7,685 to 5,822 deaths, and the rates from 6.6 to 4.9.

The only marked increases were caused by diseases of the heart, the number of deaths from which increased from 245,244 in 1929 to 253,084 in 1930 and the death rate from 210.8 to 213.5 per 100,000

population, and cancer and other malignant tumors, the deaths from which increased 111,569 in 1929 to 115,265 in 1930 and the death rate from 95.9 to 97.2.

The number of deaths and the death rates per 100,000 estimated population from principal causes of death are shown for 1929 and 1930 in the accompanying table.

Deaths and death rates in the United States registration area, 1930 and 1929

Cause of death	Number		Rate per 100,000 estimated population	
	1930	1929	1930	1929
Total deaths (all causes) [1]	1,343,356	1,386,363	1,133.1	1,191.9
Typhoid and paratyphoid fever	5,698	4,854	4.8	4.2
Smallpox	165	151	.1	.1
Measles	3,820	2,923	3.2	2.5
Scarlet fever	2,279	2,468	1.9	2.1
Whooping cough	5,707	7,310	4.8	6.3
Diphtheria	5,822	7,685	4.9	6.6
Influenza	23,066	64,583	19.5	55.5
Dysentery	3,356	2,777	2.8	2.4
Erysipelas	2,508	2,887	2.1	2.5
Acute poliomyelitis and acute polioencephalitis	1,370	812	1.2	.7
Lethargic or epidemic encephalitis	1,062	1,313	.9	1.1
Epidemic cerebrospinal meningitis	4,211	5,208	3.6	4.5
Tuberculosis (all forms)	84,741	88,352	71.5	76.0
Of the respiratory system	75,120	78,624	63.4	67.6
Of the meninges, central nervous system	2,995	3,114	2.5	2.7
Other forms	6,626	6,614	5.6	5.7
Syphilis [2]	16,676	16,188	14.1	13.9
Malaria	3,403	4,084	2.9	3.5
Cancer and other malignant tumors	115,265	111,569	97.2	95.9
Of the buccal cavity	3,543	3,538	3.0	3.0
Of the pharynx	1,011	1,062	.9	.9
Of the esophagus	1,896	1,786	1.6	1.5
Of the stomach and duodenum	25,408	(3)	21.4	(3)
Of the liver and biliary passages	10,388	10,224	8.8	8.8
Of the pancreas	2,969	2,802	2.5	2.4
Of other digestive tract and peritoneum	17,151	(3)	14.5	(3)
Of the respiratory system	3,848	(3)	3.2	(3)
Of the uterus	14,132	13,702	11.9	11.8
Of other female genital organs	2,290	2,242	1.9	1.9
Of the breast	10,912	10,204	9.2	8.8
Of the male genitourinary organs	8,661	(3)	7.3	(3)
Of the skin	3,019	2,934	2.5	2.5
Of other or unspecified organs	10,037	(3)	8.5	(3)
Rheumatism and gout	4,493	4,401	3.8	3.8
Diabetes mellitus	22,528	21,829	19.0	18.8
Pellagra	6,333	6,793	5.3	5.8
Pernicious anemia	3,908	3,608	3.3	3.1
Alcoholism (acute or chronic)	4,158	4,339	3.5	3.7
Meningitis (nonepidemic)	3,048	3,594	2.6	3.1
Cerebral hemorrhage, embolism, thrombosis, and softening	100,646	100,061	84.9	86.0
Hemiplegia, other paralysis, cause not specified	4,671	5,532	3.9	4.8
Diseases of the heart	253,084	245,244	213.5	210.8
Diseases of the arteries, atheroma, aneurysm, etc	25,446	(3)	21.5	(3)
Bronchitis	4,992	5,470	4.2	4.7
Pneumonia (all forms)	98,657	106,597	83.2	91.6
Respiratory diseases other than bronchitis and pneumonia (all forms)	9,588	(3)	8.1	(3)
Ulcer of the stomach and duodenum	7,360	7,428	6.2	6.4
Diarrhea and enteritis	31,192	27,357	26.3	23.5
Diarrhea and enteritis (under 2 years)	23,294	20,788	19.6	17.9
Diarrhea and enteritis (2 years and over)	7,898	6,569	6.7	5.6
Appendicitis	18,100	17,687	15.3	15.2
Hernia, intestinal obstruction	12,176	12,283	10.3	10.6
Cirrhosis of the liver	8,583	8,377	7.2	7.2
Nephritis	107,619	106,056	90.8	91.2
Puerperal septicemia	5,439	5,822	4.6	5.0
Puerperal causes other than puerperal septicemia	9,726	9,496	8.2	8.2
Congenital malformations and diseases of early infancy	72,246	72,559	60.9	62.4

[1] Exclusive of stillbirths.
[2] Includes tabes dorsalis (locomotor ataxia) and general paralysis of the insane.
[3] Not comparable.

Deaths and death rates in the United States registration area, 1930 and 1929—Con

Cause of death	Number		Rate per 100,000 estimated population	
	1930	1929	1930	1929
Suicide	18, 551	16, 260	15. 6	14. 0
Homicide	10, 617	9, 909	9. 0	8. 5
Accidental and unspecified external causes	95, 527	94, 033	80. 6	80. 8
Burns (conflagration excepted)	5, 898	6, 168	5. 0	5. 3
Supplemental [4]	625	(3)	. 5	(3)
Accidental drowning	6, 641	7, 252	5. 6	6. 2
Supplemental [4]	809	(3)	. 7	(3)
Accidental shooting	3, 120	3, 015	2 6	2. 6
Accidental falls	17, 390	16, 919	14 7	14. 5
Supplemental [4]	2, 640	(3)	2 2	(3)
Excessive heat (burns excepted)	1, 487	500	1. 3	. 4
Other external causes	56, 917	(3)	48 0	(3)
All other defined causes	100, 655	(3)	84. 9	(3)
Unknown or ill-defined causes	24, 864	24, 258	21. 0	20. 9
Supplemental				
Mine and quarry accidents	2, 560	2, 766	2. 2	2. 4
Machinery accidents	2, 064	2, 281	1. 7	2. 0
Railroad accidents	5, 773	6, 769	4. 9	5. 8
Collision with automobile	1, 760	1, 958	1 5	1. 7
Other railroad accidents	4, 013	4, 811	3. 4	4. 1
Street-car accidents	1, 174	1, 439	1. 0	1. 2
Collision with automobile	463	507	. 4	. 4
Other street-car accidents	711	932	. 6	. 8
Automobile accidents (excluding collision with railroad trains and street cars)	29, 080	27, 066	24 5	23. 3
Other transportation accidents [5]	2, 764	(3)	2 3	(3)

[3] Not comparable.
[4] Includes deaths from this cause where the accident occurred in a mine or quarry, by machinery, or in connection with transportation.
[5] Includes air, motor-cycle, and water transportation accidents.

BIRTH, GENERAL MORTALITY, AND INFANT MORTALITY STATISTICS IN THE BIRTH REGISTRATION AREA, 1930 [1]

The Department of Commerce announces that in 1930 there were 2,203,958 live births in the United States birth registration area. This area had, on July 1, 1930, an estimated population of 116,644,000, or 94.7 per cent of the estimated total population of the United States. The birth rate, therefore, was 18.9 per 1,000 estimated population. In the same area, for the same period, there were 1,321,367 deaths, representing a death rate of 11.3. With no change in the birth registration area in the two years, the increase in the total number of births in 1930 over 1929 was 34,038.

There is much variation in the birth rates of the different States. New Mexico leads with a rate of 28.5, followed by Utah (25.4), North Carolina (24.1), Alabama and West Virginia, 24.0 each; at the other extreme are Oregon (14.1), Nevada (14.6), California (14.7), and Washington (14.7).

The highest death rates are those for New Mexico (15.5) and Arizona (15.2); the lowest rates are those for North Dakota (7.9), Oklahoma (8.2), Wyoming (9.2), Idaho (9.4), and Nebraska (9.6).

[1] Provisional figures for the birth registration area exclusive of Utah were published in the Public Health Reports for Oct. 2, 1931, pp. 2373-2376.

For the birth registration area as a whole, the birth rate for the white population is 18.7, colored, 20.7; death rates, white, 10.8, colored, 15.6. In some States the order of the birth rates for the two races is the reverse of that shown for the registration area as a whole. In Arkansas, for example, the rate for the white is 23.2 and for the colored 18.9; in Kentucky, for the white, 23.4, for the colored, 15.0; in Oklahoma, for the white, 18.4, for the colored, 11.8; and in Tennessee, for the white, 20.8, for the colored, 17.0.

Marked contrasts are shown in the death rates for the white and those for the colored in all of the States having large colored populations. In Kentucky, for example, the death rate for the white was 10.4 and for the colored 21.0. Other States showing contrasts are as follows: Tennessee, white, 9.9, colored, 18.3; Virginia, 10.5 and 18.0, respectively; Maryland, 12.0 and 18.9; and South Carolina, 9.8 and 16.6.

URBAN AREAS OF 10,000 POPULATION OR MORE

In the 941 places of 10,000 population or over, comprising 48.6 per cent of the total population of the birth registration area, there were 1,080,674 births, a rate of 19.1, and 694,703 deaths, a rate of 12.3. For the area outside of these cities there was a lower birth rate (18.7), as well as a lower death rate (10.5).

In cities having large colored populations, birth rates are generally higher for the white than for the colored, whereas the death rates in the majority of cities are higher for the colored.

INFANT MORTALITY

The infant mortality rate for 1930 (deaths of infants under one year of age per 1,000 live births) was 64.6. The number of deaths was 142,413. The infant mortality rate in 1929 was 67. 6.

New Mexico (145.4) and Arizona (116.6) had the highest infant death rates; Washington (48.7), Nebraska (49.4), and Oregon (50.0) had the lowest.

In comparing the figures for the white and colored populations, the differences in infant mortality rates are marked. The white had a rate of 59.6, while the colored was 102.4. In all the States having large colored populations the rates for the colored are higher than those for the white, in some cases practically twice as high. For example, Kentucky had a rate for the white of 62.0, for the colored, 122.2; Maryland, white, 63.0, colored, 121.1; Oklahoma, white, 56.9, colored, 107.3; and Tennessee, white, 68.6, colored, 114.9.

With a few exceptions, the trend of the infant mortality rate for cities follows the rate for the States, and in many cases the contrasts are even more vivid.

Birth and death statistics for the birth registration area, 1930

	Population estimated as of July 1, 1930	Births [1]		Deaths [1]		Infant mortality (deaths [1] under 1 year of age)	
		Number	Per 1,000 population	Number	Per 1,000 population	Number	Per 1,000 live births
Birth registration area	116,644,000	2,203,958	18.9	1,321,367	11.3	142,413	64.6
Urban	56,705,000	1,080,876	19.1	694,703	12.3	67,916	62.8
Rural	59,939,000	1,123,082	18.7	626,664	10.5	74,497	66.3
White	104,251,000	1,946,841	18.7	1,127,837	10.8	116,084	59.6
Colored	12,393,000	257,117	20.7	193,530	15.6	26,329	102.4
Alabama	2,654,000	63,757	24.0	30,422	11.5	4,599	72.1
Arizona	438,000	10,376	23.7	6,679	15.2	1,210	116.6
Arkansas	1,857,000	41,093	22.1	18,950	10.2	2,115	51.5
California	5,732,000	84,206	14.7	66,249	11.6	4,943	58.7
Colorado	1,038,000	18,814	18.1	13,207	12.7	1,775	94.3
Connecticut	1,612,000	27,693	17.2	17,287	10.7	1,551	56.0
Delaware	239,000	4,474	18.7	3,256	13.6	351	78.5
Florida	1,480,000	26,993	18.2	18,229	12.3	1,733	64.2
Georgia	2,909,000	60,689	20.9	35,183	12.1	4,700	77.4
Idaho	445,000	9,177	20.6	4,171	9.4	524	57.1
Illinois	7,659,000	128,121	16.7	83,591	10.9	7,152	55.8
Indiana	3,246,000	59,278	18.3	39,196	12.1	3,423	57.7
Iowa	2,473,000	42,733	17.3	26,228	10.6	2,303	53.9
Kansas	1,884,000	33,707	17.9	19,505	10.4	1,772	52.6
Kentucky	2,619,000	59,262	22.6	29,562	11.3	3,876	65.4
Louisiana	2,109,000	42,890	20.3	24,707	11.7	3,352	78.2
Maine	798,000	16,199	20.3	11,082	13.9	1,227	75.7
Maryland	1,636,000	30,251	18.5	21,567	13.2	2,279	75.3
Massachusetts	4,259,000	73,616	17.3	49,333	11.6	4,426	60.1
Michigan	4,871,000	99,325	20.4	51,620	10.6	6,224	62.7
Minnesota	2,568,000	47,418	18.5	25,702	10.0	2,488	52.5
Mississippi	2,015,000	48,163	23.9	24,104	12.0	3,263	67.7
Missouri	3,635,000	62,166	17.1	43,099	11.9	3,645	58.6
Montana	[2] 537,606	9,971	18.5	5,440	10.1	583	58.5
Nebraska	1,380,000	27,004	19.6	13,292	9.6	1,333	49.4
Nevada	91,000	1,332	14.6	1,160	12.7	91	68.3
New Hampshire	466,000	8,342	17.9	6,322	13.6	512	61.4
New Jersey	4,063,000	68,321	16.8	43,597	10.7	3,858	56.5
New Mexico	425,000	12,115	28.5	6,596	15.5	1,761	145.4
New York	12,643,000	216,072	17.1	147,453	11.7	12,696	58.8
North Carolina	3,185,000	76,772	24.1	35,782	11.2	6,037	78.6
North Dakota	682,000	14,783	21.7	5,371	7.9	912	61.7
Ohio	6,668,000	118,260	17.7	76,226	11.4	7,177	60.7
Oklahoma	2,405,000	42,505	17.7	19,646	8.2	2,581	60.7
Oregon	958,000	13,468	14.1	10,543	11.0	673	50.0
Pennsylvania	9,654,000	189,458	19.6	111,606	11.6	12,892	68.0
Rhode Island	690,000	12,191	17.7	8,006	11.6	753	61.8
South Carolina	1,740,000	40,460	23.3	22,433	12.9	3,589	88.7
Tennessee	2,623,000	52,652	20.1	29,987	11.4	3,988	75.7
Utah	509,000	12,946	25.4	5,064	9.9	743	57.4
Vermont	360,000	6,934	19.3	4,687	13.0	449	64.8
Virginia	2,425,000	54,703	22.6	30,315	12.5	4,226	77.3
Washington	1,568,000	23,019	14.7	16,678	10.6	1,122	48.7
West Virginia	1,736,000	41,614	24.0	18,220	10.5	3,371	81.0
Wisconsin	2,946,000	56,788	19.3	30,553	10.4	3,163	55.7
Wyoming	226,000	4,471	19.8	2,079	9.2	310	69.3

[1] Exclusive of stillbirths.
[2] Population Apr. 1, 1930; no estimate made.

DEATHS DURING WEEK ENDED JULY 16, 1932

Summary of information received by telegraph from industrial insurance companies for the week ended July 16, 1932, and corresponding week of 1931. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)

	Week ended July 16, 1932	Corresponding week 1931
Policies in force	71,961,997	75,038,874
Number of death claims	13,183	12,549
Death claims per 1,000 policies in force, annual rate	9.6	8.7
Death claims per 1,000 policies, first 28 weeks of year, annual rate	10.1	10.4

Deaths[1] *from all causes in certain large cities of the United States during the week ended July 16, 1932, infant mortality, annual death rate, and comparison with corresponding week of 1931. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)*

[The rates furnished in this summary are based upon mid-year population estimates derived from the 1930 census]

City	Week ended July 16, 1932				Corresponding week, 1931		Death rate[2] for the first 28 weeks	
	Total deaths	Death rate[2]	Deaths under 1 year	Infant-mortality rate[3]	Death rate[2]	Deaths under 1 year	1932	1931
Total (85 cities)	7.058	10.1	572	[4] 47	10.3	607	11.8	12.7
Akron	46	9.1	2	25	5.2	2	7.7	8.0
Albany[5]	25	10.0	2	41	13.7	2	14.3	14.7
Atlanta[6]	74	13.6	5	49	11.8	8	13.7	15.8
White	46	12 8	1	15	8.2	3	10.8	12.5
Colored	28	15.3	4	115	19.0	5	19.5	22.4
Baltimore[5] [6]	206	13.1	25	88	11.3	19	13.8	15.3
White	155	12.1	20	91	10 6	9	12.8	14.0
Colored	51	17.8	5	80	14.9	10	18.2	21.5
Birmingham[6]	42	7.9	6	63	11.8	7	11.5	14.5
White	22	6.7	5	82	12.5	5	8.9	11.2
Colored	20	9.9	1	27	10.7	2	15.6	19.8
Boston	188	12.5	26	79	11.7	16	14.8	14.9
Bridgeport	37	13.1	1	18	7.1	2	11.2	11.8
Buffalo	107	9.5	5	24	11.3	16	13.2	14.0
Cambridge	20	9.1	3	62	11.0	3	13.1	12.9
Camden	25	11.0	3	53	13.6	0	15.1	15.0
Canton	17	8.2	5	124	5.4	0	9.8	10.7
Chicago[5]	570	8.5	51	50	9.6	39	10.3	11.5
Cincinnati	114	12.9	7	45	16 4	13	15.4	16.9
Cleveland	170	9.6	16	52	9 9	17	11.4	11.8
Columbus	92	16.1	7	70	10.6	2	14.0	14.5
Dallas[6]	46	8.5	6	--------	9.5	8	10.8	12.0
White	32	7.2	6	--------	9.5	8	9.9	10.6
Colored	14	15.0	0	--------	9.9	0	15.0	18.6
Dayton	38	9 6	1	14	8 4	2	12.1	12.8
Denver	72	12 8	6	29	10.9	4	14.9	14.5
Des Moines	24	8.6	3	51	10 8	0	11.6	11.8
Detroit	214	6.5	16	29	7 1	28	8.1	9.0
Duluth	15	7.7	0	0	11 3	2	11.0	11.0
El Paso	22	10.8	5	--------	10.4	6	14.0	16.6
Erie	23	10.1	3	64	9 3	2	12.0	11.1
Evansville	20	9.9	0	0	9 5	2	10 3	12.1
Fall River[5] [7]	27	12.2	2	53	5.4	1	12.5	12.4
Flint	15	4.6	2	29	5 4	2	7.9	7.6
Fort Wayne	30	12.9	3	77	9 7	1	10.5	11.2
Fort Worth[6]	33	10.1	4	--------	12.8	2	10.3	11 4
White	27	9.8	3	--------	12 3	2	9.8	11.0
Colored	6	11.7	1	--------	15 3	0	13.1	13.6
Grand Rapids	84	10.2	1	17	7.9	2	9.1	9.6
Hartford	38	11.7	5	66	--------	--------	--------	--------
Houston[6]	69	11.1	5	--------	11.4	11	11.1	11.6
White	43	9.4	3	--------	11 9	9	10.3	10.8
Colored	26	15 8	2	--------	10.1	2	13.3	13.7
Indianapolis[6]	77	10.8	5	41	11.8	7	13.0	14.4
White	60	9.6	4	37	11.6	4	12.6	14.0
Colored	17	19.3	1	69	13.8	3	15.8	17.7
Jersey City	51	8.3	3	25	9.2	4	11.6	12.4
Kansas City, Kans.[6]	18	7.6	2	44	7.6	1	12.6	13.8
White	14	7.3	2	54	7.3	1	12.2	12.8
Colored	4	8.8	0	0	8.9	0	14.2	18.1
Kansas City, Mo.	101	12.7	6	68	12.0	7	12.5	14.1
Knoxville[6]	33	15.4	8	202	11.9	4	12.2	13.4
White	30	16 8	8	223	12.0	3	11.3	12.4
Colored	3	8.6	0	0	11.7	1	17.0	18.9
Long Beach	28	9.1	0	0	7.2	2	9.1	10.0
Los Angeles	250	9.5	19	56	11.0	17	10.7	11.1
Louisville[6]	98	16.6	12	110	13.4	2	13.7	15.3
White	80	16 0	11	115	11.8	0	12.4	13.7
Colored	18	19.7	1	75	21.9	2	20.9	24.0
Lowell[7]	25	13.0	2	52	4.2	1	14.2	13.3
Lynn	16	8.1	0	0	9.1	3	11.3	10.5
Memphis[6]	89	17.7	19	207	15.9	12	16.7	16.9
White	46	14.8	10	171	13.7	7	13.1	13.9
Colored	43	22.3	9	271	19.5	5	22.6	21.6

See footnotes at end of table.

Deaths[1] *from all causes in certain large cities of the United States during the week ended July 16, 1932, infant mortality, annual death rate, and comparison with corresponding week of 1931.*—Continued

City	Week ended July 16, 1932				Corresponding week, 1931		Death rate[2] for the first 28 weeks	
	Total deaths	Death rate[2]	Deaths under 1 year	Infant-mortality rate[3]	Death rate[2]	Deaths under 1 year	1932	1931
Miami[6]	20	9.2	1	28	8.8	1	11.7	12.4
White	18	10.6	1	39	7.2	1	10.6	11.2
Colored	2	4.1	0	0	14.4	0	15.6	16.4
Milwaukee	78	6.8	7	33	8.6	12	9.0	10.1
Minneapolis	88	9.6	5	33	12.7	7	10.6	12.0
Nashville[6]	42	14.0	3	45	14.4	3	15.3	17.4
White	24	11.0	3	59	10.6	0	13.9	14.9
Colored	18	21.9	0	0	24.4	3	19.0	24.0
New Bedford[7]	24	11.1	1	29	12.5	2	11.9	13.1
New Haven	22	7.1	2	40	11.5	2	12.5	12.5
New Orleans[6]	210	23.1	22	125	15.3	16	15.9	17.6
White	137	21.2	11	96	13.5	10	13.5	14.3
Colored	73	27.8	11	180	19.7	6	21.8	25.7
New York	1,252	9.1	80	36	9.4	106	11.2	12.0
Bronx Borough	183	6.9	4	12	7.1	14	8.2	8.8
Brooklyn Borough	422	8.2	30	33	8.5	34	10.4	11.1
Manhattan Borough	469	13.8	32	46	14.1	48	17.1	18.3
Queens Borough	134	5.8	10	42	6.1	8	7.2	7.7
Richmond Borough	44	13.7	4	79	13.0	2	14.3	14.2
Newark, N. J.	62	7.2	1	5	9.1	9	11.0	12.5
Oakland	52	9.1	1	13	9.6	7	10.7	10.8
Oklahoma City	48	12.2	2	27	12.7	6	10.3	11.7
Omaha	33	7.9	3	34	9.9	3	13.2	14.3
Paterson	35	13.2	5	91	7.1	1	13.2	14.3
Peoria	21	9.9	3	83	13.0	6	11.3	13.4
Philadelphia	409	10.8	36	56	10.4	29	13.1	14.3
Pittsburgh	132	10.1	9	41	11.9	18	13.3	15.8
Portland, Oreg.	52	8.7	2	26	8.8	3	11.3	11.9
Providence	57	11.6	5	48	8.6	3	13.8	13.6
Richmond[6]	46	13.0	8	121	14.4	8	14.2	16.4
White	26	10.3	2	45	14.3	7	11.7	14.0
Colored	20	19.8	6	275	14.8	1	20.4	22.6
Rochester	75	11.7	3	29	10.2	5	12.5	12.7
St. Louis	197	12.4	8	29	13.9	14	13.8	16.6
St. Paul	34	6.4	4	43	11.1	6	10.4	11.6
Salt Lake City[5]	28	10.1	0	0	10.9	4	10.9	12.4
San Antonio	64	13.6	10		10.2	5	14.1	15.7
San Diego	36	11.5	5	108	9.3	1	14.5	14.2
San Francisco	122	9.6	5	35	12.8	6	12.6	13.3
Schenectady	16	8.7	0	0	14.1	2	10.6	10.9
Seattle	68	9.4	2	20	9.5	1	11.9	11.9
Somerville	19	9.3	2	80	5.9	1	9.6	10.0
South Bend	14	6.6	1	29	6.3	0	7.8	8.6
Spokane	28	12.5	0	0	9.9	1	12.4	12.6
Springfield, Mass	31	10.5	4	67	8.2	4	11.6	12.5
Syracuse	39	9.4	2	26	9.1	5	12.1	12.2
Tacoma	17	8.2	1	28	8.2	2	12.3	12.6
Tampa[6]	20	9.7	1	29	11.4	0	11.9	12.7
White	14	8.6	1	35	9.4	0	11.2	11.7
Colored	6	13.8	0	0	18.8	0	14.4	16.3
Toledo	50	8.7	5	54	11.2	5	12.1	12.6
Trenton	24	10.1	1	20	12.6	4	16.3	17.4
Utica	15	7.6	0	0	11.2	0	15.9	14.8
Washington, D. C.[6]	136	14.4	15	84	13.2	14	17.0	16.6
White	69	10.1	5	41	10.5	8	15.1	14.8
Colored	67	25.6	10	178	20.1	6	22.0	22.9
Waterbury	14	7.2	0	0	8.3	3	9.7	10.2
Wilmington, Del.[7]	28	13.7	4	90	6.4	0	15.7	14.8
Worcester	50	13.2	5	70	7.4	0	12.8	13.1
Yonkers	18	6.6	1	26	6.4	2	8.0	9.2
Youngstown	31	9.2	0	0	11.8	1	10.0	11.1

[1] Deaths of nonresidents are included. Stillbirths are excluded.
[2] These rates represent annual rates per 1,000 population, as estimated for 1932 and 1931 by the arithmetical method.
[3] Deaths under 1 year of age per 1,000 estimated live births. Cities left blank are not in the registration area for births.
[4] Data for 81 cities.
[5] Deaths for week ended Friday.
[6] For the cities for which deaths are shown by color the percentages of colored population in 1930 were as follows: Atlanta, 33; Baltimore, 18; Birmingham, 38; Dallas, 17, Fort Worth, 16; Houston, 27; Indianapolis, 12; Kansas City, Kans., 19, Knoxville, 16; Louisville, 15; Memphis, 38; Miami, 23; Nashville, 28; New Orleans, 29; Richmond, 29; Tampa, 21; and Washington, D. C., 27.
[7] Population Apr. 1, 1930; decreased 1920 to 1930, no estimate made.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended July 23, 1932, and July 25, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 23, 1932, and July 25, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended July 23, 1932	Week ended July 25, 1931	Week ended July 23, 1932	Week ended July 25, 1931	Week ended July 23, 1932	Week ended July 25, 1931	Week ended July 23, 1932	Week ended July 25, 1931
New England States:								
Maine	8				109	11	0	0
New Hampshire					21		0	0
Vermont					66	21	0	0
Massachusetts	29	36	2	2	260	135	1	1
Rhode Island	2	1			12	67	0	0
Connecticut	1	9	6		75	55	2	0
Middle Atlantic States:								
New York	48	78	[1] 1	[1] 3	695	531	1	9
New Jersey	19	20	2		233	120	1	4
Pennsylvania	38	46			232	320	8	5
East North Central States:								
Ohio	13	15	2	5	91	74	5	1
Indiana	9	12	14	4	5	25	7	2
Illinois	26	61	2	148	91	240	2	8
Michigan	17	28			426	83	1	2
Wisconsin	8	9	8	2	176	130	0	2
West North Central States:								
Minnesota	4	5	1	1	15	22	0	2
Iowa	6	5			2	6	2	0
Missouri	20	11			15	26	2	1
North Dakota	4				4	9	0	0
South Dakota	1	2			2	1	0	0
Nebraska	2	8				2	0	1
Kansas	10	10	1	1	83	33	0	1
South Atlantic States:								
Delaware						10	0	0
Maryland [2, 3]	4	7		1	5	33	1	2
District of Columbia	5	5	1		4		0	1
Virginia [3]	9				40		1	
West Virginia	19	8			240	48	0	1
North Carolina	14	11	43		299	85	1	0
South Carolina [3]	10	8	67	42	7	48	0	0
Georgia [3]	6	8	21	8	6	9	0	0
Florida [3]	9	4	1		1	10	0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 23, 1932, and July 25, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended July 23, 1932	Week ended July 25, 1931	Week ended July 23, 1932	Week ended July 25, 1931	Week ended July 23, 1932	Week ended July 25, 1931	Week ended July 23, 1932	Week ended July 25, 1931
East South Central States:								
Kentucky						80	1	0
Tennessee	5	2	7	2	2	4	1	2
Alabama [3]	12	6	7			27	0	3
Mississippi	15	6					0	5
West South Central States:								
Arkansas		3			1	1	0	1
Louisiana	9	14	2	17		1	1	1
Oklahoma [4]	7	14		9	4	4	1	0
Texas [3]	34	12	27		9	1	0	1
Mountain States:								
Montana	1	2			7	11	0	0
Idaho					1	2	0	0
Wyoming					2	1	0	0
Colorado	14	5			12	3	0	0
New Mexico	6					1	0	0
Arizona		2		1			0	0
Utah [3]					5	7	0	1
Pacific States:								
Washington	6	4			30	14	0	0
Oregon		4	6	4	14	2	0	0
California	54	21	17	14	65	148	2	2
Total	499	487	238	264	3,317	2,411	41	59

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended July 23, 1932	Week ended July 25, 1931	Week ended July 23, 1932	Week ended July 25, 1931	Week ended July 23, 1932	Week ended July 25, 1931	Week ended July 23, 1932	Week ended July 25, 1931
New England States:								
Maine	0	1	10	9	0	0	3	0
New Hampshire	0	0	5	1	0	0	1	0
Vermont	0	0	14	7	0	1	0	0
Massachusetts	5	16	115	120	0	0	5	8
Rhode Island	0	0	11	6	0	0	1	0
Connecticut	2	11	16	9	0	0	2	1
Middle Atlantic States:								
New York	4	204	196	113	12	6	11	16
New Jersey	2	14	31	52	0	0	1	4
Pennsylvania	5	7	141	113	0	0	45	24
East North Central States.								
Ohio	0	1	57	43	8	9	32	15
Indiana	1	0	16	17	3	11	34	7
Illinois	6	12	60	104	1	43	42	17
Michigan	3	9	110	87	0	6	10	3
Wisconsin	2	6	21	25	0	1	0	6
West North Central States:								
Minnesota	3	3	17	20	0	0	1	2
Iowa	0	1	6	8	9	10	4	6
Missouri	1	0	34	16	2	3	58	23
North Dakota	0	0	0	0	1	14	1	0
South Dakota	0	0	5	3	0	1	2	5
Nebraska	0	0	0	4	0	5	2	0
Kansas	0	3	11	12	6	16	20	13
South Atlantic States:								
Delaware	0	0	5	5	0	0	0	0
Maryland [2] [3]	1	1	11	12	0	1	23	16
District of Columbia	0	0	3	2	0	0	4	4
Virginia [3]	1		15		1		64	
West Virginia	1	1	4	4	0	3	30	16
North Carolina	0	2	19	23	3	0	61	64
South Carolina [3]	1	2	1	0	0	0	71	72
Georgia [3]	0	0	5	13	0	2	86	80
Florida [3]	0	0	2	1	0	0	7	19

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 23, 1932, and July 25, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended July 23, 1932	Week ended July 25, 1931	Week ended July 23, 1932	Week ended July 25, 1931	Week ended July 23, 1932	Week ended July 25, 1931	Week ended July 23, 1932	Week ended July 25, 1931
East South Central States:								
Kentucky	1	0	14	17	0	1	192	25
Tennessee	0	1	7	8	1	4	128	41
Alabama [3]	1	1	12	8	1	4	47	80
Mississippi	0	0	1	2	1	6	37	42
West South Central States:								
Arkansas	0	0	1	2	1	1	51	17
Louisiana	0	1	5	9	0	1	74	48
Oklahoma [4]	0	2	9	12	15	11	62	85
Texas [3]	4	1	13	5	5	18	39	43
Mountain States:								
Montana	0	1	13	3	6	2	4	2
Idaho	0	0	1	3	2	1	0	6
Wyoming		0	3	1	0	1	0	0
Colorado	0	0	14	3	3	0	5	7
New Mexico	0	0	2	0	0	0	3	11
Arizona	0	0	3	0	0	0	2	6
Utah [2]	0	0	3	0	0	0	0	0
Pacific States:								
Washington	0	2	10	6	11	17	1	6
Oregon	1	0	3	10	2	1	5	3
California	4	4	44	33	9	4	15	20
Total	49	307	1,099	951	103	204	1,295	758

[1] New York City only.
[2] Week ended Friday.
[3] Typhus fever, week ended July 23, 1932, 24 cases: 1 case in Maryland, 2 cases in Virginia, 1 case in South Carolina, 5 cases in Georgia, 3 cases in Florida, 4 cases in Alabama, and 8 cases in Texas.
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa and for 1931 are exclusive of Tulsa only.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week:

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
May, 1932										
Illinois	26	259	243	11	5,152		5	1,432	33	39
New Hampshire		4					0	145		0
June, 1932										
California	7	261	182	2	1,734	4	16	580	67	60
Colorado	2	31			296		0	81	4	10
Maryland	1	31	15	2	172	5		203	0	46
Massachusetts	11	152	9	1	3,879	2	3	1,403	0	20
Michigan	11	96	20	1	10,873		5	1,809	25	27
Minnesota	4	43	7		304		7	258	13	4
Missouri	14	108	4	9	228		1	89		15
New Hampshire		6					0	55		0
New York	31	344		4	8,788		13	3,142	2	60
Ohio	9	92	48	1	4,621		10	726	65	66
Pennsylvania	25	267			4,218	1	2	2,178	0	57
Rhode Island		83			152		0	189	0	
South Carolina		57	872	1,103	631	485	4	9		124
West Virginia	3	28	43		758	1	0	47	3	75

May, 1932	Cases
Illinois:	
Chicken pox	1,395
Dysentery	6
German measles	32
Lethargic encephalitis	4
Mumps	319
Ophthalmia neonatorum	1
Paratyphoid fever	3
Puerperal septicemia	12
Septic sore throat	19
Tetanus	3
Trachoma	2
Tularaemia	2
Undulant fever	7
Vincent's angina	21
Whooping cough	1,221

June, 1932

	Cases
Actinomycosis:	
California	1
Massachusetts	1
Chicken pox:	
California	2,285
Colorado	211
Maryland	374
Massachusetts	980
Michigan	1,016
Minnesota	283
Missouri	203
New York	2,555
Ohio	771
Pennsylvania	1,781
Rhode Island	66
South Carolina	58
West Virginia	46
Dengue:	
South Carolina	1
Diarrhea:	
Maryland	48
South Carolina	1,384
Dysentery:	
California (amebic)	4
California (bacillary)	23
Maryland	21
Massachusetts	1
Minnesota	2
Missouri	31
New York	7
Ohio	1
Pennsylvania	1
South Carolina (bacillary)	1
West Virginia	4
Food poisoning:	
California	55
Ohio	221
German measles:	
California	56
Maryland	15
Massachusetts	61
New York	194
Ohio	18
Pennsylvania	118
Granuloma, coccidioidal:	
California	2
Hookworm disease:	
South Carolina	79
Impetigo contagiosa:	
Maryland	8
Jaundice, epidemic:	
California	2
Leprosy:	
California	2
Maryland	1
Lead poisoning:	
Ohio	8
Lethargic encephalitis:	
California	2
Colorado	1
Maryland	1
Michigan	7
Minnesota	4
New York	7
Ohio	5
Pennsylvania	9
South Carolina	3
Mumps:	
California	679
Colorado	225
Maryland	436
Massachusetts	989
Michigan	767
Missouri	87
New York	1,553
Ohio	375
Pennsylvania	2,042
Rhode Island	78
South Carolina	96
West Virginia	6
Ophthalmia neonatorum:	
California	3
Maryland	2
Massachusetts	77
Minnesota	1
New York	6
Ohio	87
Pennsylvania	14
South Carolina	14
Paratyphoid fever:	
California	6
Colorado	1
New York	12
Ohio	2
Rhode Island	1
South Carolina	11
Puerperal septicemia	
New York	13
Ohio	4
Pennsylvania	31
Rabies in animals:	
California	38
Maryland	5
Missouri	3
New York [1]	1
South Carolina	19
Rocky Mountain spotted or tick fever:	
Colorado	3
Septic sore throat:	
California	9
Maryland	13

[1] Exclusive of New York City.

Septic sore throat—Continued.	Cases
Massachusetts	19
Michigan	15
Missouri	5
New York	33
Ohio	101
Rhode Island	1
Tetanus:	
California	11
Maryland	3
Massachusetts	1
New York	11
Ohio	1
Pennsylvania	7
South Carolina	1
Trachoma:	
California	16
Massachusetts	5
Minnesota	1
New York	1
Ohio	6
Pennsylvania	2
Rhode Island	1
Trichinosis:	
California	2
Massachusetts	2
New York	2
Pennsylvania	2
Tularaemia:	
California	2
Michigan	1
Minnesota	4
Missouri	2

Typhus fever:	Cases
Maryland	
Massachusetts	
New York	
South Carolina	
Undulant fever:	
California	14
Maryland	
Massachusetts	
Michigan	
Minnesota	7
Missouri	15
New York	18
Ohio	10
Pennsylvania	3
Vincent's angina:	
Colorado	12
Maryland	13
New York [1]	93
Whooping cough:	
California	1,835
Colorado	205
Maryland	456
Massachusetts	680
Michigan	1,276
Minnesota	292
Missouri	142
New York	1,807
Ohio	1,270
Pennsylvania	2,080
Rhode Island	72
South Carolina	135
West Virginia	278

[1] Exclusive of New York City.

Cases of Certain Communicable Diseases Reported for the Month of May, 1932, by State Health Officers

State	Chicken pox	Diphtheria	Measles	Mumps	Scarlet fever	Smallpox	Tuberculosis	Typhoid and paratyphoid fever	Whooping cough
Maine	86	11	923	32	78	0	38	12	83
New Hampshire		4			145			0	
Vermont	111	2	1,355	583	53	26	9	1	89
Massachusetts	938	135	4,468	1,387	1,971	0	432	14	815
Rhode Island	27	17	303	106	237	0	46	1	48
Connecticut	441	15	1,125	285	461	0	151	8	409
New York	2,617	420	11,277	1,714	5,984	8	1,784	57	2,141
New Jersey	1,115	134	4,253	1,625	1,313	0	886	7	1,017
Pennsylvania	2,357	316	7,814	2,705	3,231	0	511	25	2,568
Ohio	1,333	115	10,802	859	1,471	61	697	18	1,724
Indiana	389	91	602	729	369	31	178	8	356
Illinois	1,395	259	5,152	319	1,432	33	1,026	42	1,221
Michigan	1,048	45	11,650	1,398	2,010	41	500	18	1,304
Wisconsin	1,060	24	9,118	655	206	8	243	7	966
Minnesota	277	28	207		437	27	289	9	219
Iowa	136	39	21	126	158	119	55	12	70
Missouri	285	126	832	243	190		[1] 226	15	155
North Dakota	110	33	213	24	24	9	20	0	22
South Dakota	29	16	35	34	19	2	12	1	32
Nebraska	123	55	13	99	75	58	16	2	55
Kansas	474	30	1,435	301	128	29	108	13	548

[1] Pulmonary.

Cases of Certain Communicable Diseases Reported for the Month of May, 1932, by State Health Officers—Continued

State	Chicken pox	Diphtheria	Measles	Mumps	Scarlet fever	Smallpox	Tuberculosis	Typhoid and paratyphoid fever	Whooping cough
Delaware	6	2	5	32	50	0	21	2	30
Maryland	612	46	251	659	377	0	215	15	564
District of Columbia	172	30	86		95	0	107	2	88
Virginia	439	47	623		170	1	213	41	1,391
West Virginia	72	71	1,059	4	81	3	56	28	225
North Carolina	311	55	3,458		150	9		32	1,675
South Carolina	111	50	649	154	15	2	116	49	195
Georgia	86	36	298	109	37		154	84	99
Florida	63	24	33	32	6	21	59	33	46
Kentucky [2]									
Tennessee	137	29	85	60	87	56	177	39	303
Alabama	93	38	38	139	25	52	437	27	178
Mississippi	308	27	62	157	24	92	106	50	889
Arkansas	12	22	6	45	7	28	23	11	72
Louisiana	55	106	230	2	52	33	[1] 168	74	86
Oklahoma [3]	24	31	84	19	39	80	40	6	56
Texas		108			87			18	
Montana	94	1	411	46	62	14	62	8	46
Idaho	43	14	9	36	19	3	[1] 3	2	
Wyoming	7	3	139	57	23	2		1	1
Colorado	390	27	459	432	100	8	58	9	161
New Mexico	71	29	135	32	53	3	46	10	41
Arizona	64	16	5	5	24	0	76	2	37
Utah [2]									
Nevada	16		13		3	0	4	2	33
Washington	231	30	1,126	115	103	76	[4] 216	23	123
Oregon	97	17	1,035	86	29	33	48	7	115
California	3,527	260	2,768	806	708	67	930	53	1,696

[2] Reports received weekly.
[3] Exclusive of Oklahoma City and Tulsa.
[4] Delayed reports included.

Case Rates per 100,000 Population (Annual Basis) for the Month of May, 1932

State	Chicken pox	Diphtheria	Measles	Mumps	Scarlet fever	Smallpox	Tuberculosis	Typhoid and paratyphoid fever	Whooping cough
Maine	127	16	1,359	47	115	0	56	18	122
New Hampshire		10			366			0	
Vermont	364	7	4,444	1,912	174	85	30	3	292
Massachusetts	257	37	1,226	381	541	0	119	4	224
Rhode Island	46	29	513	179	401	0	78	2	81
Connecticut	318	11	812	206	333	0	109	6	295
New York	240	39	1,035	157	549	1	164	5	196
New Jersey	317	38	1,208	462	373		110	2	289
Pennsylvania	286	38	947	328	391	0	62	3	311
Ohio	233	20	1,887	150	257	11	122	8	301
Indiana	140	33	217	263	133	11	64	3	128
Illinois	212	39	782	48	217	5	156	6	185
Michigan	248	11	2,756	331	475	10	118	4	308
Wisconsin	420	10	3,615	260	117	3	96	3	383
Minnesota	126	13	95		200	12	132	4	100
Iowa	65	19	10	60	75	57	[1] 26	6	33
Missouri	92	41	107	78	61		73	5	50
North Dakota	190	57	368	41	41	16	35	0	38
South Dakota	49	27	59	57	32	3	20	2	54
Nebraska	105	47	11	84	64	49	14	2	47
Kansas	295	19	895	188	80	18	67	8	342
Delaware	29	10	21	157	245	0	103	10	147
Maryland	437	33	179	470	269		153	11	403
District of Columbia	411	72	206		227	0	256	5	210
Virginia	213	23	302		82	0	103	20	674
West Virginia	48	48	710	3	54	2	38	19	151
North Carolina	113	20	1,257		55	3		12	609
South Carolina	75	34	439	104	10	1	78	33	132
Georgia	35	15	121	44	15		63	34	40
Florida	49	18	25	25	5	16	45	25	35

[1] Pulmonary.

Case Rates per 100,000 Population (Annual Basis) for the Month of May, 1932—Continued

State	Chicken pox	Diphtheria	Measles	Mumps	Scarlet fever	Smallpox	Tuberculosis	Typhoid and paratyphoid fever	Whooping cough
Kentucky [2]									
Tennessee	61	13	38	27	39	25	79	17	185
Alabama	41	17	17	61	11	23	192	12	78
Mississippi	179	16	36	91	14	53	61	29	515
Arkansas	8	14	4	28	4	18	15	7	46
Louisiana	30	58	127	1	29	18	[1] 93	41	47
Oklahoma [3]	14	18	48	11	22	45	23	3	32
Texas		20			17			4	
Montana	206	2	903	101	136	31	136	18	101
Idaho	114	37	24	95	50	8	[1] 8	5	
Wyoming	36	15	714	293	118	10		5	5
Colorado	439	30	517	487	113	9	65	10	181
New Mexico	194	79	370	88	145	8	126	27	112
Arizona	169	42	13	13	63	0	200	5	98
Utah [2]									
Nevada	203		165		38	0	51	25	419
Washington	172	22	836	85	76	56		17	91
Oregon	117	21	1,252	104	35	40	58	8	139
California	698	51	548	160	140	13	184	10	236

[1] Pulmonary. [2] Reports received weekly. [3] Exclusive of Oklahoma City and Tulsa.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 92 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 32,445,000. The estimated population of the 86 cities reporting deaths is more than 31,360,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended July 16, 1932, and July 18, 1931

	1932	1931	Estimated expectancy
Cases reported			
Diphtheria:			
46 States	545	568	
92 cities	199	262	436
Measles:			
45 States	4,360	3,629	
92 cities	1,492	1,136	
Meningococcus meningitis:			
46 States	40	49	
92 cities	16	28	
Poliomyelitis:			
46 States	44	116	
Scarlet fever:			
46 States	1,362	1,141	
92 cities	534	439	408
Smallpox:			
46 States	102	217	
92 cities	8	22	28
Typhoid fever:			
46 States	909	755	
92 cities	82	84	76
Deaths reported			
Influenza and pneumonia:			
86 cities	288	288	
Smallpox:			
86 cities	0	0	

City reports for week ended July 16, 1932

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded, and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible but no year earlier than 1923 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	2	0	0		0	0	0	2
New Hampshire:								
Concord	0	0	0		0	0	0	0
Manchester	0	0	0		0	0	0	1
Nashua	2	0	0		0	0	0	0
Vermont:								
Barre	0	0	0		0	1	0	0
Burlington	0	1	0		0	0	0	0
Massachusetts:								
Boston	31	19	20		1	107	33	14
Fall River	2	2	0		0	7	0	0
Springfield	7	1	0		0	12	0	0
Worcester	3	0	2		0	16	2	3
Rhode Island:								
Pawtucket	0	0	0		0	0	0	0
Providence	4	3	3		0	6	2	4
Connecticut:								
Bridgeport	0	3	0		1	17	0	0
Hartford	6	1	0	1	1	0	6	7
New Haven	7	0	0		0	0	1	1
MIDDLE ATLANTIC								
New York:								
Buffalo	14	7	0		0	7	0	9
New York	89	141	53	1	3	287	96	64
Rochester	11	3	0		0	3	6	2
Syracuse	2	0	0		0	94	2	1
New Jersey:								
Camden	4	3	0		0	0	0	0
Newark	8	9	3	1	0	56	38	1
Trenton	0	1	0		0	3	3	1
Pennsylvania:								
Philadelphia	34	33	5		0	9	23	16
Pittsburgh	20	11	2		0	16	6	9
Reading	3	1	0		0	9	3	1
Scranton	1		0			2	0	
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	0	3	3		0	0	0	2
Cleveland	28	14	3	3	0	20	14	8
Columbus	2	2	1	2	2	37	0	2
Toledo	4	2	0	1	0	21	0	3
Indiana:								
Fort Wayne	0	1	5		0	0	0	1
Indianapolis	4	1	0		1	0	6	3
South Bend	2	0	1		0	1	0	0
Terre Haute	0	0	0		0	1	0	0
Illinois:								
Chicago	60	60	15		0	113	7	16
Springfield	1	0	0		0	0	2	0

City reports for week ended July 16, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
EAST NORTH CENTRAL—continued								
Michigan:								
Detroit	14	27	13	2	0	431	8	18
Flint	3	1	1		0	1	1	0
Grand Rapids	3	0	0		0	1	10	0
Wisconsin:								
Kenosha	0	0	0		0	49	0	0
Madison	5	0	4			12	0	
Milwaukee	30	7	0		0	46	4	2
Racine	17	0	0		0	3	1	0
Superior	3	0	0		0	0	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth	6	0	0		0	0	0	0
Minneapolis	4	8	3		0	7	0	2
St Paul		2						
Iowa:								
Des Moines	0	0	0			0	0	
Sioux City	1	0	0			0	0	
Waterloo	0	0	0			0	1	
Missouri:								
Kansas City	3	2	1		0	15	12	5
St. Joseph	0	0	2		0	1	0	1
St. Louis	3	17	14			4	4	2
North Dakota:								
Fargo	0	0	0		0	1	0	0
Grand Forks	0	0	0			2	0	
South Dakota:								
Aberdeen	0	0	0			1	0	
Nebraska								
Omaha	0	1	4		0	2	0	1
Kansas								
Topeka	8	0	0		0	10	0	1
Wichita	0	0	0		0	1	1	2
SOUTH ATLANTIC								
Delaware:								
Wilmington	0	0	0		0	0	0	0
Maryland:								
Baltimore	21	9	4	3	2	5	34	9
Cumberland	0	0	0		0	0	0	0
Frederick	0	0	0		0	0	0	1
District of Columbia:								
Washington	7	4	6		0	2	0	7
Virginia:								
Lynchburg	3	0	0		0	1	0	1
Richmond	0	1	0		0	0	0	0
Roanoke	0	0	0		0	0	0	0
West Virginia:								
Charleston	0	0	0		0	0	0	0
Huntington	0		0		0	0	0	0
Wheeling	1	0	0		0	10	0	1
North Carolina:								
Raleigh		0						
Wilmington	0	0	0		0	0	0	0
Winston-Salem		0						
South Carolina:								
Charleston	0	0	0	8	0	0	0	0
Columbia	4	0	0		0	1	0	3
Greenville	0	0	0		0	0	0	0
Georgia:								
Atlanta	0	1	0		0	0	3	4
Brunswick	0	0	0		0	0	0	1
Savannah	2	0	0	15	0	2	0	1
Florida:								
Miami	1	1	2		1	0	0	0
Tampa	0	0	5	1	1	0	0	0

City reports for week ended July 16, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL								
Kentucky:								
Covington		0						
Lexington	2		0		0	0	0	1
Tennessee:								
Memphis	0	1	0		0	0	0	3
Nashville	0	0	0		0	1	0	0
Alabama:								
Birmingham	3	1	0		0	0	3	0
Mobile	0	0	2		0	0	0	0
Montgomery	0	0	0			0	1	
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith	0	0	0			0	0	
Little Rock	0	0	0		0	0	0	2
Louisiana:								
New Orleans		5			0			9
Shreveport	0	0	0		0	0	2	4
Oklahoma:								
Muskogee	0	0	0		0	0	0	0
Tulsa	1	0	0			0	0	
Texas:								
Dallas	0	2	5		0	1	0	2
Fort Worth	1	1	1		0	0	0	0
Galveston	0	0	0		0	0	0	0
Houston	0	2	7		0	4	0	3
San Antonio	0	1	4		0	0	0	7
MOUNTAIN								
Montana:								
Billings	0	0	0		0	1	0	0
Great Falls	0	0	0		0	1	0	0
Helena	2	0	0		0	0	0	0
Missoula	0	0	0		0	0	0	1
Idaho:								
Boise	1	0	0		0	2	0	0
Colorado:								
Denver	12	6	2		1	13	9	4
Pueblo	2	1	0		0	0	0	0
New Mexico:								
Albuquerque	0	0	1		0	0	2	0
Arizona:								
Phoenix	0	0	0		0	0	0	1
Utah:								
Salt Lake City	13	1	0		0	1	4	1
Nevada:								
Reno	0	0	0		0	0	0	0
PACIFIC								
Washington:								
Seattle	18	1	0			5	7	
Spokane	11	1	0			16	0	
Tacoma	5	2	0		0	18	0	2
Oregon:								
Portland	0	3	0		0	7	0	1
Salem	0	1	0		0	8	1	0
California:								
Los Angeles	21	19	10	20	0	15	25	7
Sacramento	2	1	0		0	0	0	1
San Francisco		5						

City reports for week ended July 16, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	0	0	0	0	0	0	0	1	0	1	22
New Hampshire:											
Concord	0	2	0	0	0	0	0	0	0	0	8
Manchester	0	2	0	0	0	1	0	0	0	0	30
Nashua	0	0	0	0	0	0	0	0	0	0	--------
Vermont:											
Barre	0	0	0	0	0	0	0	0	0	0	2
Burlington	0	0	0	0	0	0	0	0	0	0	11
Massachusetts:											
Boston	26	39	0	0	0	13	1	0	0	49	188
Fall River	2	6	0	0	0	2	1	1	0	0	29
Springfield	2	1	0	0	0	0	0	0	0	0	31
Worcester	3	3	0	0	0	5	1	1	0	12	50
Rhode Island:											
Pawtucket	0	0	0	0	0	0	0	0	0	0	26
Providence	4	10	0	0	0	4	0	0	0	9	57
Connecticut:											
Bridgeport	2	1	0	0	0	3	0	0	0	15	37
Hartford	1	7	0	0	0	1	0	0	0	5	41
New Haven	1	0	0	0	0	1	0	0	0	17	22
MIDDLE ATLANTIC											
New York:											
Buffalo	9	27	0	0	0	11	0	1	0	27	100
New York	59	79	0	0	0	103	14	10	3	145	1,252
Rochester	4	28	0	0	0	4	1	1	0	1	69
Syracuse	3	5	0	0	0	1	0	0	0	54	39
New Jersey:											
Camden	1	7	0	0	0	1	0	0	0	5	25
Newark	7	11	0	0	0	6	0	2	1	25	65
Trenton	1	1	0	0	0	3	1	0	0	0	24
Pennsylvania:											
Philadelphia	31	48	0	0	0	27	3	3	0	36	409
Pittsburgh	15	14	1	0	0	5	0	0	0	45	132
Reading	1	2	0	0	0	0	0	0	0	16	24
Scranton	--------	0	--------	0	--------	--------	--------	2	--------	7	--------
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	7	8	1	0	0	8	1	2	0	15	114
Cleveland	14	19	0	0	0	15	1	1	0	69	170
Columbus	2	3	1	0	0	5	0	1	0	16	92
Toledo	4	3	1	0	0	5	0	2	0	32	40
Indiana:											
Fort Wayne	1	0	1	0	0	2	0	4	0	0	31
Indianapolis	3	1	3	0	0	8	0	1	0	12	--------
South Bend	1	0	0	0	0	0	0	0	0	0	14
Terre Haute	0	1	0	0	0	1	0	4	0	1	27
Illinois:											
Chicago	57	60	2	0	0	43	3	5	0	106	570
Springfield	1	1	0	0	0	0	0	2	0	0	23
Michigan:											
Detroit	39	47	1	0	0	18	2	2	0	146	214
Flint	6	1	0	0	0	1	0	0	0	7	16
Grand Rapids	5	6	0	0	0	2	0	0	0	19	34
Wisconsin:											
Kenosha	1	0	0	0	0	0	0	0	0	7	8
Madison	1	0	0	0	--------	--------	0	0	--------	17	--------
Milwaukee	10	4	0	0	0	6	0	0	0	57	78
Racine	1	1	0	0	0	0	0	0	0	0	9
Superior	2	0	1	0	0	1	0	0	0	0	9
WEST NORTH CENTRAL											
Minnesota:											
Duluth	4	0	0	0	0	1	0	0	0	0	15
Minneapolis	12	6	0	0	0	5	0	0	0	13	88
St. Paul	7	--------	0	--------	--------	--------	0	--------	--------	--------	--------
Iowa:											
Des Moines	1	0	2	0	--------	--------	0	0	--------	0	24
Sioux City	1	0	1	0	--------	--------	0	0	--------	5	--------
Waterloo	0	0	0	0	--------	--------	0	0	--------	0	--------

City reports for week ended July 16, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL—continued											
Missouri:											
Kansas City	3	17	0	0	0	7	1	4	0	61	101
St. Joseph	0	1	0	0	0	0	0	0	0	3	
St. Louis	11	4	0	0	0	11	4	2	0	13	197
North Dakota:											
Fargo	0	0	0	0	0	0	0	0	0	0	1
Grand Forks	0	0	0	0	------	------	0	0	------	0	------
South Dakota:											
Aberdeen	0	0	0	0	------	------	0	0	------	0	------
Nebraska:											
Omaha	1	6	2	0	0	1	0	0	0	3	33
Kansas:											
Topeka	0	0	0	0	0	1	0	1	0	17	11
Wichita	0	0	1	0	0	0	0	0	0	5	27
SOUTH ATLANTIC											
Delaware:											
Wilmington	1	1	0	0	0	2	0	0	0	0	23
Maryland:											
Baltimore	9	8	0	0	0	17	4	1	0	71	206
Cumberland	0	1	0	0	0	0	0	0	0	0	15
Frederick	0	0	0	0	0	0	0	0	0	0	2
Dist. of Columbia:											
Washington	7	4	0	0	0	17	2	1	0	7	136
Virginia:											
Lynchburg	1	1	0	0	0	1	1	0	0	34	10
Richmond	1	4	0	0	0	1	2	0	0	0	38
Roanoke	0	1	0	0	0	0	0	0	0	0	9
West Virginia:											
Charleston	0	0	0	0	0	0	1	0	0	0	9
Huntington	------	0	------	0	0	0	------	0	0	0	------
Wheeling	1	0	0	0	0	1	0	0	0	4	13
North Carolina:											
Raleigh	0	------	0	------	------	------	0	------	------	------	------
Wilmington	0	0	0	0	0	0	0	2	0	2	7
Winston-Salem	0	------	0	------	------	------	1	------	------	------	------
South Carolina:											
Charleston	0	0	0	0	0	4	1	2	0	0	27
Columbia	0	0	0	0	0	3	0	0	0	1	41
Greenville	------	0	------	0	------	------	1	0	------	0	------
Georgia:											
Atlanta	2	0	0	0	0	6	3	1	0	0	74
Brunswick	0	0	0	0	0	2	1	0	0	0	4
Savannah	0	0	0	0	0	3	0	2	0	0	33
Florida:											
Miami	0	0	0	0	0	2	0	0	0	1	20
Tampa	0	0	0	0	0	1	0	0	0	0	16
EAST SOUTH CENTRAL											
Kentucky:											
Covington	0	------	0	------	------	------	0	------	------	------	------
Lexington	------	0	------	0	0	1	------	1	1	4	15
Tennessee:											
Memphis	1	0	0	0	0	6	7	6	1	11	89
Nashville	0	2	0	0	0	3	4	2	0	5	42
Alabama:											
Birmingham	2	3	1	0	0	2	3	1	0	5	42
Mobile	0	0	0	0	0	1	0	2	0	0	26
Montgomery	0	1	0	0	------	------	0	0	------	0	------
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	0	0	0	------	------	0	2	------	0	------
Little Rock	0	1	0	0	0	0	1	1	0	0	------
Louisiana:											
New Orleans	3	------	0	------	0	16	4	------	1	------	210
Shreveport	0	0	0	0	0	0	1	2	4	1	42

City reports for week ended July 16, 1932—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST SOUTH CENTRAL—continued											
Oklahoma:											
Muskogee	0	0		0	0	0		0	0	0	
Tulsa	1	1	0	0			1	1		17	
Texas:											
Dallas	2	2	1	0	0	0	3	1	0	13	46
Fort Worth	1	0	0	1	0	3	1	0	0	0	33
Galveston	0	0	0	0	0	1	0	0	0	0	11
Houston	1	2	1	0	0	6	2	2	1	3	69
San Antonio	1	1	0	0	0	8	1	0	0	0	64
MOUNTAIN											
Montana:											
Billings	0	0	0	0	0	0	0	0	0	0	3
Great Falls	1	0	0	0	0	0	0	0	0	0	7
Helena	0	0	0	0	0	0	0	0	0	2	6
Missoula	0	0	0	0	0	0	0	0	0	0	8
Idaho:											
Boise	0	0	0	3	0	0	0	0	0	0	5
Colorado:											
Denver	4	0	0	0	0	4	1	1	0	23	71
Pueblo	0	0	0	0	0	0	0	0	0	1	1
New Mexico:											
Albuquerque	0	0	0	0	0	2	0	0	0	5	6
Arizona:											
Phoenix	0	0		0	0	6	0	0	0	0	
Utah:											
Salt Lake City	1	1	1	0	0	2	0	0	0	14	28
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	5
PACIFIC											
Washington:											
Seattle	3	5	1	2			1	2		3	
Spokane	1	0	2	0			0	0		5	
Tacoma	1	5	2	1	0	0	0	1	0	1	17
Oregon:											
Portland	1	0	5	1	0	4	0	0	0	1	52
Salem	0	0	0	0	0	0		0	0	5	
California:											
Los Angeles	13	13	2	2	0	14	3	1	0	115	250
Sacramento	1	1	0	0	0	4	0	0	0	1	26
San Francisco	7		0				0				

City reports for week ended July 16, 1932—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Worcester	0	1	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York [1]	5	3	0	0	0	0	6	2	1
New Jersey:									
Newark	0	0	1	0	0	0	0	0	0
Pennsylvania:									
Philadelphia	4	1	0	0	0	1	0	2	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	0	0	0	0	0	0	0	1	0
Columbus	0	0	1	1	0	0	0	0	0
Indiana:									
Indianapolis	3	1	0	0	0	0	0	0	0
Illinois:									
Chicago	2	1	0	0	0	0	1	1	1
Springfield	0	1	0	0	0	0	0	0	0
Michigan:									
Detroit	0	0	0	0	0	0	0	2	0
Wisconsin.									
Milwaukee	1	1	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Missouri: [1]									
Kansas City	1	0	0	0	0	0	0	0	0
North Dakota:									
Fargo	0	0	0	0	0	0	0	1	0
SOUTH ATLANTIC									
Maryland:									
Baltimore [1]	0	0	0	1	0	0	0	0	0
Cumberland	0	0	0	1	0	0	0	0	0
Virginia:									
Richmond	0	1	0	0	0	0	0	0	0
North Carolina:									
Wilmington	0	0	0	0	0	1	0	0	0
South Carolina:									
Charleston [1]	0	0	0	0	1	0	0	0	0
Columbia	0	1	0	0	0	1	0	0	0
Georgia:									
Atlanta	0	0	1	1	0	0	0	0	0
Florida:									
Tampa	0	0	0	0	1	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis	0	0	0	0	1	2	0	0	0
Alabama:									
Birmingham	0	0	0	0	2	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans	0	1	0	0	0	2	0	0	0
Texas:									
Fort Worth [1]	0	0	0	0	0	3	0	0	0
San Antonio	0	0	0	0	0	0	0	2	0

[1] Typhus fever, 4 cases and 1 death: 1 case at New York City, N. Y.; 1 case at St. Louis, Mo.; 1 death at Baltimore, Md.; 1 case at Charleston, S. C.; and 1 case at Fort Worth, Tex.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended July 16, 1932, compared with those for a like period ended July 18, 1931. The population figures used in computing the rates are estimated mid-year populations for 1931 and 1932, respectively, derived from the 1930 census. The 98 cities reporting cases have an estimated aggregate population of more than 34,000,000. The 91 cities reporting deaths have more than 32,400,000 estimated population.

Summary of weekly reports from cities, June 12 to July 16, 1932—Annual rates per 100,000 population, compared with rates for the corresponding period of 1931 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	June 18, 1932	June 20, 1931	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931
98 cities	47	66	[2] 36	54	[3] 44	[4] 47	[5] 31	43	[6] 32	42
New England	62	41	[7] 31	67	204	96	[8] 46	60	60	65
Middle Atlantic	50	65	38	47	27	53	28	50	28	37
East North Central	34	89	30	72	[9] 24	49	23	41	25	50
West North Central	64	52	[10] 63	42	59	33	40	31	[11] 51	31
South Atlantic	22	44	27	45	[12] 28	[12] 12	31	18	[13] 31	24
East South Central	6	6	[14] 25	23	12	12	[14] 6	23	[14] 12	29
West South Central	76	85	[15] 73	68	89	27	106	61	[16] 75	47
Mountain	26	26	17	9	26	[17] 9	17	17	17	61
Pacific	67	71	[18] 11	51	34	51	[19] 13	41	[19] 25	51

MEASLES CASE RATES

	June 18, 1932	June 20, 1931	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931
98 cities	617	719	[2] 540	568	[3] 372	[4] 384	[5] 241	316	[6] 240	181
New England	1,059	635	[7] 1,001	438	630	402	[8] 561	351	395	317
Middle Atlantic	363	664	376	511	345	284	188	311	214	144
East North Central	1,298	1,159	972	920	[9] 650	768	409	527	419	316
West North Central	136	331	[10] 109	297	57	140	74	103	[11] 86	61
South Atlantic	392	768	294	591	[12] 154	[12] 311	104	259	[13] 43	107
East South Central	35	852	[14] 12	593	0	352	[14] 0	117	[14] 6	117
West South Central	59	88	[15] 101	47	53	24	33	27	[16] 24	17
Mountain	612	609	543	479	431	[17] 215	267	122	155	122
Pacific	394	302	[18] 613	363	227	149	[19] 156	182	[19] 135	123

SCARLET FEVER CASE RATES

	June 18, 1932	June 20, 1931	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931
98 cities	252	222	[2] 176	168	[3] 137	[4] 105	[5] 84	79	[6] 86	70
New England	417	272	[7] 343	238	280	188	[8] 202	142	165	149
Middle Atlantic	321	280	211	195	168	135	82	89	98	68
East North Central	344	310	208	240	[9] 168	122	110	90	91	106
West North Central	44	132	[10] 63	78	63	31	45	44	[11] 72	42
South Atlantic	102	77	90	93	[12] 58	[12] 55	43	49	[13] 41	34
East South Central	12	94	[14] 19	65	29	47	[14] 0	53	[14] 37	23
West South Central	13	30	[15] 56	30	36	41	10	34	[16] 28	34
Mountain	164	78	155	96	52	[17] 36	86	52	9	26
Pacific	126	57	[18] 42	57	53	47	[19] 50	49	[19] 60	12

SMALLPOX CASE RATES

	June 18, 1932	June 20, 1931	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931
98 cities	3	7	[2] 2	8	[3] 2	[4] 6	[5] 1	2	[6] 1	3
New England	0	5	[7] 0	0	0	0	[8] 0	2	0	0
Middle Atlantic	0	0	0	1	0	0	0	0	0	0
East North Central	1	5	1	5	[9] 1	8	0	1	0	4
West North Central	9	29	[10] 6	19	2	10	2	4	[11] 0	4
South Atlantic	0	14	0	12	[12] 0	[12] 0	0	4	[13] 0	0
East South Central	12	12	[14] 12	18	6	23	[14] 6	6	[14] 0	0
West South Central	0	20	[15] 0	30	3	24	0	10	[16] 0	7
Mountain	0	0	0	70	17	[17] 0	43	0	26	0
Pacific	17	16	[18] 23	6	10	14	[19] 5	8	[19] 13	22

See footnotes at end of table.

Summary of weekly reports from cities, June 12 to July 16, 1932—Annual rates per 100,000 population, compared with rates for the corresponding period of 1931 [1]—Continued

TYPHOID FEVER CASE RATES

	Week ended—									
	June 18, 1932	June 20, 1931	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931
98 cities	10	9	[2] 10	10	[3] 13	[4] 10	[5] 12	14	[6] 13	13
New England	5	10	[7] 18	0	5	10	[8] 5	2	7	12
Middle Atlantic	7	12	4	4	4	5	5	8	8	8
East North Central	4	4	5	6	[9] 10	3	10	5	13	5
West North Central	6	6	[10] 12	10	6	10	11	19	[11] 15	2
South Atlantic	29	14	37	16	[12] 42	[12] 10	24	28	[13] 18	47
East South Central	35	12	[14] 44	35	75	41	[14] 69	59	[14] 69	35
West South Central	16	14	[15] 21	54	56	71	46	81	[16] 38	58
Mountain	0	0	9	52	9	[17] 36	17	35	9	26
Pacific	15	10	[18] 8	14	4	4	[19] 5	6	[19] 10	6

INFLUENZA DEATH RATES

	June 18, 1932	June 20, 1931	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931
91 cities	5	7	[2] 6	4	[3] 3	[4] 3	[5] 2	3	[6] 2	2
New England	5	7	[7] 3	2	0	0	[8] 0	2	7	0
Middle Atlantic	5	8	7	2	4	1	2	4	1	0
East North Central	4	5	3	6	[9] 4	1	3	2	2	4
West North Central	6	6	[10] 9	0	0	9	0	0	[11] 0	3
South Atlantic	8	4	6	6	[12] 2	[12] 4	0	4	[13] 6	4
East South Central	0	0	[14] 7	6	13	19	[14] 7	6	[14] 0	0
West South Central	13	14	[15] 14	7	0	10	3	7	0	3
Mountain	0	9	9	0	0	[17] 9	9	0	9	0
Pacific	2	5	[18] 6	2	2	5	[19] 0	0	[19] 0	0

PNEUMONIA DEATH RATES

	June 18, 1932	June 20, 1931	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931
91 cities	62	70	[2] 57	67	[3] 53	[4] 64	[5] 50	59	[6] 46	47
New England	79	65	[7] 65	60	62	36	[8] 53	79	74	50
Middle Atlantic	75	72	61	76	61	67	63	59	46	63
East North Central	42	60	43	51	[9] 34	61	32	47	31	29
West North Central	52	106	[10] 53	38	64	77	35	88	[11] 48	71
South Atlantic	76	89	73	103	[12] 52	[12] 67	67	71	[13] 58	40
East South Central	13	83	[14] 55	140	31	83	[14] 27	51	[14] 20	45
West South Central	81	76	[15] 61	90	91	90	57	86	91	45
Mountain	52	78	60	35	60	[17] 72	43	61	52	35
Pacific	53	34	[18] 54	41	44	46	[19] 36	31	[19] 33	24

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1932 and 1931, respectively.
[2] Hartford, Conn., Wichita, Kans., Covington, Ky., Little Rock, Ark., and Los Angeles, Calif., not included.
[3] Fort Wayne, Ind., and Columbia, S. C., not included.
[4] Columbia, S. C., and Billings, Mont., not included.
[5] Barre, Vt., Covington, Ky., and San Francisco, Calif., not included.
[6] St. Paul, Minn., Raleigh, and Winston-Salem, N. C., Covington, Ky., New Orleans, La., and San Francisco, Calif., not included.
[7] Barre, Vt., not included.
[8] Hartford, Conn., not included.
[9] Fort Wayne, Ind., not included.
[10] Wichita, Kans., not included.
[11] St. Paul, Minn., not included.
[12] Columbia, S. C., not included.
[13] Raleigh and Winston-Salem, N. C., not included.
[14] Covington, Ky., not included.
[15] Little Rock, Ark., not included.
[16] New Orleans, La., not included.
[17] Billings, Mont., not included.
[18] Los Angeles, Calif., not included.
[19] San Francisco, Calif., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Two weeks ended July 9, 1932.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases for the two weeks ended July 9, 1932, as shown in the following table. Provinces not given in the table did not report, during the week, any case of any disease included in the table.

Province	Cerebrospinal fever	Influenza	Lethargic encephalitis	Poliomyelitis	Smallpox	Typhoid fever
Nova Scotia		3				1
New Brunswick						1
Quebec	1		1	5		79
Ontario				5	1	18
Saskatchewan					3	1
Alberta				2		3
British Columbia	2					1
Total	3	3	1	12	4	104

Quebec Province—Communicable diseases—Week ended July 9, 1932.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended July 9, 1932, as follows:

Disease	Cases	Disease	Cases
Chicken pox	24	Poliomyelitis	3
Diphtheria	16	Puerperal fever	1
Erysipelas	3	Scarlet fever	35
German measles	1	Tuberculosis	65
Measles	36	Typhoid fever	29
Ophthalmia neonatorum	1	Whooping cough	50

CZECHOSLOVAKIA

Communicable diseases—May, 1932.—During the month of May, 1932, certain communicable diseases were reported in Czechoslovakia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	8		Puerperal fever	32	19
Cerebrospinal meningitis	15	6	Scarlet fever	1,472	34
Diphtheria	1,546	69	Trachoma	165	
Dysentery	10	3	Typhoid fever	359	35
Malaria	78		Typhus fever	5	
Paratyphoid fever	18	1			

MALTA

Valetta—Communicable diseases—May, 1932.—During the month of May, 1932, cases of certain communicable diseases were reported in the port of Valetta, and in localities outside the port, as follows:

Disease	In port	Outside port	Disease	In port	Outside port
Broncho-pneumonia	4	2	Measles	3	
Cerebrospinal meningitis		2	Pneumonia	2	10
Chicken pox	11	6	Puerperal fever		2
Diphtheria	2		Scarlet fever	2	
Enteric fever	9	17	Trachoma	6	24
Erysipelas		1	Tuberculosis	4	13
Influenza		1	Undulant fever	59	73
Lethargic encephalitis	1		Whooping cough	14	26

YUGOSLAVIA

Communicable diseases—June, 1932.—During the month of June, 1932, certain communicable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	57	6	Paratyphoid fever	12	
Cerebrospinal meningitis	16	11	Scarlet fever	222	12
Diphtheria and croup	357	37	Sepsis	7	2
Dysentery	31	1	Tetanus	67	38
Erysipelas	120	5	Typhoid fever	114	14
Measles	652	1	Typhus fever	16	1

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place		Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Week ended—													
					April, 1932				May, 1932				June, 1932				July, 1932	
					9	16	23	30	7	14	21	28	4	11	18	25	2	9
China:																		
Amoy	C														3		15	149
	D														2		11	85
Canton	C			2			1				1	1	2	49	330	298	203	96
	D										1		1	22	152	90	73	24
Dairen	C																	38
Hankow	C	1	1				3			8					6	10	10	10
	D						1			3								
Hong Kong	C															9	45	33
	D															9	18	23
Kwantung	C																P	
Macao	D																	5
Nanking	C														123	131	104	111
	D														45	34	22	21
Newchwang	C															1	5	
	D																4	
Shanghai	C								11	11	8	40	92	90	130	276	314	217
	D									1	1	1	10	9	23	11	20	21
Swatow	C										1			1		49	48	46
	D															3	3	
Tientsin	C													3	16	22	19	
	D														5	3	3	
Honduras: Pedro Sula[1]	C																	1
	D																	1
India	C	10,001	5,826	4,952	1,519	1,432	1,709	1,635	1,497	1,126	923	840	852					
	D	5,267	2,788	2,358	780	719	863	832	731	592	400	447	427					
Bombay	C		1															1
	D		1															1
Calcutta	C	133	1,118	162	53	114	53	130	174	228	141	106	79	63	106	132	143	129
	D	70	54	73	25	56	25	42	58	125	79	59	38	27	51	70	60	53
Chittagong	C	6	1	2														
	D	1	22	1														
Madras	C		3	6														
	D		3	3														
Rangoon	C										1				1	2		
	D										1				1	1		

India (French):																		
Chandernagor	C								11		3	5			1			
	D								5		2	5			1			
Karikal	C	35	2															
	D	17																
Pondicherry Territory	C	15		2														
	D	15		2														
Pondicherry	C			1														
	D			1														
Indo-China (see also table below):																		
Pnompenh	C	2			1						1		1		1	1		
	D	2			1						1		1		1	1		
Saigon and Cholon	C	1	1	1			1	1	1	1	2	2	2	2	1	1	1	
	D						1	1	1	1	2	2	1	1	1	1	1	
Japan:																		
Kobe	C													1	1			
Tokyo	C													1	2			
Persia: Kouh Bezman	C							[2] 1										
Philippine Islands: Capiz Province	C	22	23															
	D	20	20															
Siam	C	1		1	1	1					8		8					
	D	1		2		1					7		4					
Bangkok	C	1		2	1										2			
	D	1		1														
On vessels:																		
S. S. Angora at Rangoon from Calcutta	C			1														
S. S. Narbada at Rangoon from Calcutta	C				1													
	D				1													
S. S. Shanghai Maru at Kobe from Shanghai	C												1					
S. S. President Wilson en route to Manila from Honolulu via Shanghai and Hong Kong	C															2		
	D															1		

Place		December, 1931	January, 1932	February, 1932	March, 1932			April, 1932			May, 1932			June, 1932	
					1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20
Indo-China (French) (see also table above):															
Annam [3]	C			4							93	20	21		
	D			4							7	2	6		
Cambodia [3]	C	3	12	5	6	1	3	4	1	20	12	6		13	16
	D	2	6	4	3	1	1	3		8	2	1		10	12
Cochin-China [3]	C	14	5	7	3	2	4	3	6	18	11	30		17	17
	D	7	4	5	2	1	2	2	3	13	8	21		16	12
Laos [3]	C							7							
	D							3							

[1] Diagnosis was not made with laboratory tests.
[2] A suspected case.
[3] Reports incomplete.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE[1]

[C indicates cases; D deaths; P, present]

Place		Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Week ended – April, 1932: 9	16	23	30	May, 1932: 7	14	21	28	June, 1932: 4	11	18	25	July, 1932: 2	9
Argentina:																		
Cordoba Province[2]	C	1				2												
Rosario	D											1						
San Luis Province	C													1	1			
Belgian Congo	C											2						
British East Africa (see also table below):																		
Tanganyika	C	10		2									19	1				
	D	10											11					
Uganda	C	31	8	4	1	7	13	18	11	9	6	11	16	25				
	D	26	6	4	1	6	11	18	7	8	6	10	15	24				
Canary Islands: Palma Islands—Los Lanos	C	8								1								
	D	8																
Ceylon: Colombo	C	5	4	3		1		1	1	3		2	5	3	3	2	5	1
	D	3	2	3		1		1	1	1		2	5	3	3	2	5	1
Plague-infected rats		1		1				1	5	2	2		4					
China:																		
Kwang Chow Wan	C			8														
	D			8														
Shensi Province	C		P															
Dutch East Indies:																		
Java—																		
Surabaya	C	2																
	D	2																
Tegal	C		1															
Java and Madura	D	499	459	362	98	75	95	97	70	62	76	71	72					
West Java	C	201	141	213	68	52	64	55			41	44						
	D	200	139	213	68	52	63	54			41	43						
Ecuador (see table below).																		
Egypt:																		
Alexandria	C	2		2					1	2	1	8	1	2		1	3	1
	D									2		1	2	1	1		1	1
Assiout	C	1																
	D	1																
Beheira	C	11						1	2				1	1				
	D	2						1	3				1					
Beni Suef	C						4	33	2									
	D							8	3									

Gharbieh	C												2		1			
	D													1				
Minieh	C	1		3														
	D	1		3														
Tanta	C	1																
	D	1																
Hawaii Territory:																		
Hawaii Island—																		
Hamakua—																		
Honokaa	C		2															
	D		2															
Plague-infected rats			1															
Kukaiau—Plague-infected rats												1	1					
Maui Island—																		
Makawao	C		1															
	D		1															
Plague-infected rats			4															
India	C	7,892	8,593	9,724	1,804	1,400	1,279	714	684	474	256	259	133					
	D	3,971	4,970	5,543	1,065	852	859	443	505	360	203	192	91					
Bassein	C	1	4	9	4			1	2					2		1		2
	D		4	7	3		1		2					2		1		1
Bombay	C		5	8	6	3	5	5	2	2	1		1					
	D		5	6	5	3	5	2	1	2	1		1					
Plague-infected rats		57	109	117	30	23	35	34	25	21	1	11	3		9	11		5
Madras	C						[3] 1											
	D						1											
Madras Presidency	C	2,951	70	158	42	16	11		18	5	6	11	13			13		
	D	155	47	86	14	6	4		4	4	1	2	8			2		
Rangoon	C		9	4	4	1	1	1				1				1	2	
	D	1	8	4	4	1		1									2	
Plague-infected rats			2	8	4			1		2		1		1		2	2	2
Indo-China (see table below).																		
Iraq: Baghdad	C	5	3													1		
	D		1															
Madagascar (see table below).																		
Peru (see table below).																		
Senegal (see table below).																		
Siam	C	1	1	7														
	D	1		3														
Southwest Africa.[4]																		
Syria: Beirut	C				1			1							1		2	
Union of South Africa: Orange Free State	C	P	P	P														
	D			10														
United States: California—Los Angeles—Plague-infected rats					1				2					1				
On vessel:																		
Steamship Columbia, at Naples, from Barcelona—Plague-infected rats																1		

[1] Including plague in the United States and its possessions.
[2] 10 cases of bubonic plague were reported in Cordoba Province, Argentina, in January, 1932. They were distant from railroad and 500 kilometers from ports.
[3] An imported case.
[4] 80 cases of plague with 15 deaths were reported in Ovamboland, Southwest Africa, up to Apr. 30, 1932. Antiplague measures have been taken.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place		January, 1932	February, 1932	March, 1932	April, 1932	May, 1932	June, 1932
British East Africa (see also table above): Kenya	C	17	33	22	18	11	30
Ecuador:							
Province—							
Chimborazo	C	8	13		6	10	2
Loja	C	11					
Indo-China	C	17	P	P	9	2	1
	D	9			6	1	1
Madagascar:							
Province—							
Ambatolampy	C	23	40	25			
	D	23	38	25			
Ambositra	C	166	90	81	19		
	D	152	81	67	17		
Antsirabe	C	53	45	54	21		
	D	51	45	53	21		
Maevatanana	C			4			
	D			4			
Miarinarivo	C	15	13	9	6		
	D	15	12	9	6		
Moramanga	C	13	9	3			
	D	13	9	3			
Tananarive	C	203	148	71	42		
	D	196	140	70	40		

Place		January, 1932	February, 1932	March, 1932	April, 1932	May, 1932	June, 1932
Peru	C	11	2				
	D	8	2				
Department—							
Canete	C	3					
Lambayeque	C						2
Libertad	C	1			28	33	
Otuzco	C					1	
Lima	C	6		1			
Lima	C		1	1	1	1	
	D		1				
Piura	C	1					
Senegal:							
Dakar [4]	C			10			
	D			5			
Louga [4]	C					3	
	D					2	
Rufisque [4]	C					3	6
	D					3	6
Yombel [4]	C			9			
	D			5			

[4] Reports incomplete.

SMALLPOX

Place		Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Week ended— April, 1932: 9	16	23	30	May, 1932: 7	14	21	28	June, 1932: 4	11	18	25	July, 1932: 2	9	16
Aden	C	2		1															
Algeria:																			
Algiers	C													1	1				
Constantine Department	C					1		1	1		1								
Philippeville	C							1											
Southern Territories	C		2																
Brazil:																			
Porto Alegre (alastrim)	C	34	19	5	2	1	2	3	2	2									
	D			1															
Santos	C	2																	2
British East Africa: Tanganyika	C	24	5	P					79	11			19						
	D	7	2										11						
British South Africa:																			
Northern Rhodesia	C	5																	
Southern Rhodesia	C			4	1	6													
Canada.																			
British Columbia	C	25	17	9												1			
	D	4	9	3															
Manitoba	C	10				1													
Nova Scotia	C		1																
Ontario	C	6	21	4		2	4		1			23							
North Bay	C	1																	
Quebec	C	1	8													1			
Saskatchewan	C	35	30	6		1	5	2	3	1	3	6		1		2		3	
China.																			
Amoy	C	183	121	45	7	5	4	1	3		2	3				1			
	D	91	44	25	4	3	3	1	2		2	2				1			
Canton	C	27	44	79	24	18	22	17	19	9	5	9	1	3	3	3	1		
	D		1	7			1		1										
Foochow	C	P	P	P		P		P		P		P		P		P			
Hankow	C	59	4	5	1		1	1	1	1	3								
	D	5	1																
Hong Kong	C	11	51	45	12	13	21	9	7	9	7	1	4	5	2	1	1		
	D	6	23	28	2	6	6	6	7	6	2	2	4	6	1	1	1		
Manchuria: Dairen	C	1	1	16	7		1		1		1				3				
Shanghai	C	163	167	102	22	24	22	22	16	6	5	6	3	3					
	D	62	67	45	7	10	8	10	6	5		2	1	2					
Swatow	C		1																
Tientsin	C	1	2	8	1	1			1				2						
	D		1	1															

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Week ended— April, 1932: 9	16	23	30	May, 1932: 7	14	21	28	June, 1932: 4	11	18	25	July, 1932: 2	9	16
Chosen (see table below).																			
Dahomey	C			6	3			2	2					15		9			
	D			1	1									6		1			
Dutch East Indies	C	1																6	
	D	1																	
Egypt:																			
Alexandria	C			1						1	1				1				1
Cairo	C	1																	1
Suez	C		2	20	1	1	2		1										
	D			3															
Finland	C											1							
France (see table below)																			
Germany: Aix-la-Chapelle	C	1																	
Gold-Coast (see table below).																			
Great Britain:																			
England and Wales	C	227	258	273	70	87	96	62	68	76	56	68	49	36	25	30	22	35	
London	C	100	136	129	30	25	45	34	41	39	25	29	49	18	15	18	19	28	
London and Great Towns	C	188	203	236	57	63	85	51	59	60	47	52	37	31	37	23	21	32	
Greece (see table below).																			
Guatemala (see table below).																			
Honduras: [1]																			
Ceiba	D		1	2	1			1											
Puerto Castilla	C	1	4					4			1	P			2				
Tegucigalpa	C		5																
Tela	C			2	2							1							
Trujillo	C		35																
	D		5																
India	C	4,576	9,709	12,040	4,093	3,431	3,083	3,120	4,230	3,338	2,771	2,879	3,418						
	D	970	1,896	2,234	783	705	665	742	966	796	676	515	812						
Bassein	C	3			1														
	D				1														
Bombay	C	6	23	27	7	7	8	3	10	12	2	12	7	4	5	6	5	3	
	D	2	10	12	2	3	5		2	4	1	5	4	2	3	4	3	3	

Calcutta	C	27	102	159	38	19	40	36	17	35	22	19	15	16	21	12	12	12	
	D	15	54	115	30	11	22	36	12	29	16	10	17	14	8	8	9	10	
Chittagong	C			2						2									
	D			1						1									
Cochin	C	1	9	3	1														
Karachi	C	18	23	19	6	4	10	9	4	5	3	4	7	5	3	5	1		
	D	6	8	8	2		2	5		2	1	3	1	1	1	1			
Madras	C	9	15	51	15	20	13	10	17	10	10	10	3	8	5	6	8	8	
	D	3	4	16	4	2	2	3	2	4	2	3		3	2	3	2	3	
Moulmein	C	4	4	7	1									5					
Negapatam	C		1	1							1	2							
	D	1									1								
Rangoon	C	147	418	606	116	71	32	41	18	26	13	9	6	10	5	8	8	7	
	D	40	127	179	32	28	12	16	9	11	6	2	4	4	1	2	2	1	
Tuticorin	C	28	36	14		3		2	4						1				
	D	2	8	9		1		2	5						1				
Vizagapatam	C		3	2													1		
India (French):																			
Karikal	C	1	4	19	3	15	1	2	2	4	1	4		2					
	D	1	4	9	3	6	1	2	2	2	1	2		1					
Pondicherry Territory	C	32	20	29	3	10	6	3	3	5	28	11		4	2	1	3		
	D	27	20	26	2	8	6	3	3	5	28	11		4	2	1	3		
Indo-China (see also table below):																			
Pnompenh	C	1	2	1															
Saigon and Cholon	C	117	145	212	33	35	32	13	12	8	8	5	3	3	3	9	2		
	D	92	85	174	30	32	27	12	11	7	7	5	3	3	2	9	2		
Iraq:																			
Baghdad	C	10	4	20		5	10	12	4	7	10		14	9	3	1			1
	D	13	4	10		2	5	6	2	3	3		6	4	2				
Basra	C	2	2	11	1	1	1	1	1	1	4	2	2	4	2			4	
	D					1	2	1		1	1	1	1		1			1	1
Ivory Coast (see table below).																			
Japan:																			
Kobe	C		1	2		1				1	7	2							
	D			1								1							
Nagasaki	C								1	4	4	4	1	1	1				
Osaka Prefecture [3]	C						3	90	34	48									
Osaka	C									1									
Taiwan	C	35	58	1			1												
Yokohama	C	2																	
Mexico (see also table below):																			
Chihuahua	D		3	1	1						1			5					
Durango	D				1														
Jalisco (State)—Guadalajara	D	3		1			1	1		1	1		1	1					
Mexico City and surrounding territory	C	14	33	6	2	5	6	3	3	2	3	9	4	7	2	5			
	D		1				1	1		1									
Monterrey	C	1	8	1		1	1		1			1							
Saltillo	D										1	2	2				2	1	
San Luis Potosi	D	5	2	3		1	1		1			1		1					
Torreon	C	6	2	2	1			2		1	1	1	1	1	1				
	D	2	3	2	1			2		3			1			1			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Jan. 10–Feb. 6, 1932	Feb. 7–Mar 5, 1932	Mar. 6–Apr. 2, 1932	Week ended—														
					April, 1932				May, 1932				June, 1932				July, 1932		
					9	16	23	30	7	14	21	28	4	11	18	25	2	9	16
Morocco (see table below).																			
Nigeria	C	217	46	750			82	34		939		104							
	D	120	2	111			6	13		316		17							
Palestine	C									1									
Poland	C									1			1						
Portugal:																			
Lisbon	C	98	50	38	5	11	4	6	10	5	8	6	2	5	6	12	1	2	
Oporto	C	3	14	14	10	6		5	3	5	8	8	4	9	8	2	8		
Salvador	C		85	10															
Siam	C	1		2								1	8	1					
Sierra Leone [4]	D												4	1					
Straits Settlements	C	4	6	1															
	D	1		2															
Sudan (Anglo-Egyptian)	C	3	8	4		1		2						1	1	1			
	D	1	1																
Sweden: Malmo	C	9																	
Syria (see table below).																			
Tunisia: Tunis	C			1												2			
Turkey (see also table below): Istanbul	C		1			1				1									
Union of South Africa:																			
Cape Province	C				P	P	P	P	P	P	P	P	P						
Orange Free State	C					P	P	P											
Transvaal	C			P				P	P		P	P	P	P					
On vessels:																			
S. S. Cressington Court at Yokohama from Shanghai	C	1																	
S. S. Bollington Court at Yokohama from Shanghai	C	1																	
S. S. Victoria City at Brisbane from Shanghai	C	1																	
S. S. Frauenfels at Suez from Calcutta	C			1															
S. S. Uwajima Maru at Osaka from Shanghai	C	1																	
S. S. Hong Kheng at Singapore from Amoy, via Swatow and Hong Kong	C	1																	

S. S. Hai Ning and S. S. Solviken at Hong Kong	C	P																	
S. S. Merkara at Aden from Colombo	C	2																	
S. S. Tjisadane at Hong Kong from Shanghai and Amoy	C	P																	
S. S. Poafung at Shanghai	C	1																	
S. S. Rajula at Penang from Negapatam	C	P																	
S. S. MacGillivary at Suez from Rangoon	C			[5] 1															
S. S. Tainui at Southampton from New Zealand	C			[5] 1															
S. S. Glenbank at Suez from Aden	C			1															
S. S. Tuscania at Suez from Bombay	C												1						

Place		January, 1932	February, 1932	March, 1932	April, 1932			May, 1932			June, 1932	
					1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20
Gold Coast	C	2								2		
	D	1										
Indo-China (see also table above)	C	309	660	727	175	247	146	211	78		61	130
	D	148	231	342	80	97	64	46	37		27	41
Ivory Coast	C										19	
	D										1	
Syria. Beirut	C	5			1		1					

Place		December, 1931	January, 1932	February, 1932	March, 1932	April, 1932	May, 1932
Chosen	C	1	1	6	30	55	55
	D			3	9	5	8
France	C	1					
Greece	C				1	8	
Guatemala	C		5				
	D		1				

Place		December, 1931	January, 1932	February, 1932	March, 1932	April, 1932	May, 1932
Mexico (see also table above)	D	423					
Morocco	C	279	488	368	308	101	101
Turkey (see also table above)	C		31	22	2		
	D		1	1			

[2] 500 cases of smallpox with 15 deaths were reported in Honduras from July, 1931, to Feb 16, 1932.
[3] 264 cases of smallpox were reported in Osaka Prefecture, Japan, from Mar. 1 to May 28, 1932.
[4] From Mar. 6 to June 11, 1932, 814 cases of smallpox with 11 deaths, were reported in Sierra Leone.
[5] A suspected case.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

Place		Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Week ended— April, 1932				May, 1932				June, 1932				July, 1932	
					9	16	23	30	7	14	21	28	4	11	18	25	2	9
Algeria:																		
Algiers	C	1	3	7		8	9	23	7	23	31		8	5	5	12	33	
Constantine Department	C	7		7									1				9	
Geryville	C	7	1															
Oran	C			1								4	10					
Bulgaria	C	44	66	44	15	6	15	9	10	7	16	5	4	5	3	3		
	D	6	6	2		3	4	2		2	1		1		1			
Chile:																		
Antofagasta	C	1									1							
Iquique	C													1				
Santiago	C			1		1						1	1					
China:																		
Hankow	C			5						1		1			1			
Swatow	C		2															
Tientsin	C									1								
Chosen (see table below).																		
Colombia: Cali	D		1															
Czechoslovakia (see table below).																		
Egypt:																		
Alexandria	C		1		5	2	7					1	5	2		1		
Beheira	C		70	46				5										
	D		16					1										
Dakahlia	C										69							
Gharbieh	C		12					5										
	D							2										
Port Said	C												1					
Provinces	C	43	333	676	112	49	41	20	27	38	38	60	139					
	D	3	25	49	18	9	12	4	6	1	1		10					
Greece (see table below).																		
Irish Free State:																		
Roscommon County—																		
Leitrim	C										1							
	D										1							
Roscommon	C												1					

Latvia (see table below).																		
Lithuania (see table below).																		
Mexico:																		
Mexico City, including municipalities in Federal District	C	25	20	7	3	2	3	3	2		5	1	2	4		1		
	D	9	12	4	1		2					2		1		1		1
San Luis Potosi	D		1	1														
Morocco	C	6	59	29	9	7	3	15	3	7	7	2	13	5	4	4	5	
	D		6	6	1									3				
Palestine	C	3	1						1				2	1		1		1
Paraguay: Asuncion	D		1															
Persia	C											123	69					
	D											4	5					
Poland	C	265	215	255	85	95	119	115	70	106	106	98	83	77	21	23	38	
	D	10	21	22	5	10	11	13	7	4	5	9	3	4	1	6	3	
Portugal:																		
Lisbon	C												2	5				
Oporto	C	1	1		10				3				4					
Rumania	C	264	296	270	89	62	55	46	61	60	53	60	40					
	D	13	28	31	8	6	5	2	8	8		7	5					
Tunisia: Tunis	C	1	24	81	32	6	20	19	26	15	13	1	13	9	6			
	D		3	8	4													
Turkey (see table below).																		
Union of Socialist Soviet Republics (see table below).																		
Union of South Africa:																		
Cape Province	C	P	P	P	P	P	P	P	P	P	P	P	P					
Natal	C		P				P	P	P					P				
Orange Free State	C	P	P	P	P	P	P	P	P	P	P							
Transvaal	C	P	P										P					
Venezuela: Caracas (see table below).																		
Yugoslavia (see table below).																		

Place		December, 1931	January, 1932	February, 1932	March, 1932	April, 1932	May, 1932
Chosen: Seoul	C			5	4		
	D			1			
Czechoslovakia	C	10	1			1	5
	D	3					
Greece	C	6	4	4	7	1	
	D	1					
Latvia	C	12					
Lithuania	C	20	21	10	32	25	13
	D	1	3	3	3	5	1

Place		December, 1931	January, 1932	February, 1932	March, 1932	April, 1932	May, 1932
Turkey	C	21	14	22	6	1	
	D	2	3	1	3		
Union of Socialist Soviet Republics	C	1,464	8,670	9,017	9,765		
Venezuela: Caracas	D	1	2				
Yugoslavia	C	14	11	26	5	29	34
	D	1		2	1		6

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

YELLOW FEVER

[C indicates cases; D, deaths; P, present]

Place		Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Week ended— April, 1932: 9	16	23	30	May, 1932: 7	14	21	28	June, 1932: 4	11	18	25	July 2, 1932
Bolivia [1]																	
Brazil:																	
Bahia State—Esplanada	C								P								
Ceara State	C							1									
	D							1									
Espirito Santo State	C			2	1	P	P	P									
	D			2	1												
Santa Teresa (about 56 miles from Victoria)	D		1														
Parahyba State	C															1	
	D															1	
Pernambuco State	D				1												1
Dahomey: Porto Novo	C			1													
	D			1													
Gold Coast:																	
Avudua	C			1	1												
Cape Coast	C			P													
Tamale	C			1													
Yapei	C		1														
Nigeria	C											1					

[1] Indirect reports show cases suspected to have been yellow fever in Southern Bolivia during April, 1932.

X

UNITED STATES TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

ISSUED WEEKLY

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SPECIAL ARTICLES

Notes on Experimental Meningitis in Rabbits

Report of Milk Committee, Conference of State and Provincial Health Authorities, 1932

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General.*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

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They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of public health.

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CONTENTS

PUBLIC HEALTH REPORTS

VOL. 47 AUGUST 12, 1932 NO. 33

NOTES ON EXPERIMENTAL MENINGITIS IN RABBITS

By S. E. BRANHAM, *Senior Bacteriologist*, and R. D. LILLIE, *Passed Assistant Surgeon, the National Institute of Health, United States Public Health Service*

During January, 1931, a study of the possibility of producing meningococcus meningitis in rabbits was undertaken. Recently Zdrodowski and Voronine (1) reported the production of such meningitis in 90 per cent of their rabbits, using a technique almost identical with our own.

We have obtained this condition with certainty in a smaller proportion of rabbits injected. The most recently isolated strains available were used. Newly isolated meningococci varied so in virulence that a preliminary titration for virulence was done in mice, after the method of Murray (2). A strain with a minimum fatal dose for mice over 200,000,000 microorganisms seldom produced symptoms in rabbits.

Under light ether anæsthesia, rabbits weighing 1.5 to 2 kg were given intracisternal injections of 0.2 cc containing usually ½ billion cocci suspended in Ringer's solution of pH 7 to 7.4. The suspensions were made from 18-hour growth on "EDB/v" agar or rabbit's blood agar.

According to the symptoms that developed after these injections, the 49 rabbits given young living cultures fall into 4 general groups:

(1) In 12 rabbits the symptoms resemble "forme (b)" of Zdrodowski and Voronine. The course of the disease was too rapid to follow easily. Rapid breathing and extreme prostration developed within a few hours after injection, and death followed in 12 to 18 hours, sometimes earlier.

(2) In 4 rabbits the course of the disease was characterized by dyspnea and marked prostration, followed by marked rigidity of the neck. Bending the animal's neck slightly was likely to cause it to cry out. The rabbits became very sensitive, and even a touch caused tetanic spasms or convulsions. The course of the disease was afebrile and was fatal in 2 to 4 days. This clinical picture resembles that described by Zdrodowski and Voronine as "forme (a)."

(3) This group of 7 rabbits showed slowly developing paralysis, usually beginning in the hind limbs. Respiratory difficulty was frequent. All these animals except one showed a definite fever

(40.0° to 41.5°C.) on the second or third day after injection, usually coincidental with the onset of paralysis. In 5 rabbits paralysis was slight and recovery complete within 5 or 6 days after injection; in 2 paralysis involved practically the whole body and resulted in death. This group apparently corresponds to "forme (c)" of Zdrodowski and Voronine.

(4) Twenty-seven rabbits showed no definite symptoms. All except three showed fever of 40° to 41.5°C. on the second day. A few developed some stiffness but no definite paralysis.

All of the rabbits that died were carefully autopsied. Cerebrospinal fluid was withdrawn by cisternal puncture before the brain was exposed. The meninges were often adherent. Three or four showed an increased amount of cerebrospinal fluid.

Stained smears of the cisternal fluid and meningeal exudate showed single and paired Gram-negative cocci free and in leucocytes in 11 of the rapidly fatal group, in all of the group showing characteristic symptoms of meningitis, and in 1 of the progressive paralysis group.

Cultures of Gram-negative cocci resembling the meningococcus were obtained from six—five times from cisternal fluid, twice from meninges, and twice from the heart. Their identity with the meningococcus could not be proved by any of the means available, and definitely successful animal passage was not accomplished. These bacteriological findings are at variance with those of Zdrodowski and Voronine.

Histopathologic study was made of the brains of the 7 rabbits of group 1, 3 in group 2, and the 2 fatal cases of group 3.

Fibrinopurulent to purulent meningitis, generally more marked basally, in the cerebellopontine angles and around the mid-brain and thalamus, was the major significant histological finding. It was more marked in the animals showing spasticity and rigidity which came to autopsy 1 or 2 days after injection, and was replaced by round-cell infiltration, fibroblast proliferation, and encapsulating meningeal abscesses in 6 to 16 days, both in the spastic and paralytic groups.

Purulent infiltration of the sheaths of perforating vessels and of the margins of the brain substance, miliary intracerebral abscesses, meningeal and intracerebral hemorrhages, and ventricular exudates containing serum, blood, pus, and round cells, were less constant findings.

Of the rabbits presenting no symptoms after inoculation with living meningococci, one (G1) was killed 24 hours after injection and showed the "spontaneous" encephalitis of rabbits, with scattered foci and slight diffuse admixture of polymorphonuclear leucocytes in the predominantly lymphoid exudate in the pia, chorioid plexi, and ventricles. It appears probable that the relatively scanty polymorphonuclear response was assignable to the meningococcus.

Failure to recover meningococci, together with the findings in rabbit G1, led to the examination of the brains of several rabbits which had received cultures boiled for 5 minutes before they were injected. Most of these animals showed some fever the next morning, but were otherwise normal and lively. They were killed 24 hours after injection and examined as above indicated.

Cultures from these rabbits were negative, but smears from cisternal fluid showed cocci within the abundant polymorphonuclear leucocytes.

Histologically these three animals showed purulent meningitis similar to the foregoing. Fibrin, hemorrhage, marginal purulent infiltration of brain substance, and chorioid plexitis of variable grade were seen in two rabbits.

These findings suggested that intact living meningococci might not be necessary to produce clinical symptoms. Thirty-eight rabbits were injected intracisternally with 0.2cc of filtered meningococcus suspensions prepared as for the Schwartzman reaction (3), except that no preservative was added and Berkefeld N filters were used.

Twenty-six rabbits, or 68 per cent, showed symptoms of intoxication, and only 2 recovered. These rabbits, as well as those receiving the living virulent cultures, fell into three groups: (1) Sixteen dying in 5 to 18 hours, corresponding to the group 1 rabbits receiving living virulent cultures; (2) three corresponding to group 2 receiving living cultures, and showing general spasticity and rigidity of the neck; (3) seven showing progressive paralysis indistinguishable from that seen in the rabbits of the group 3 that were given living cultures. Cultures from the meninges of all of these animals were negative. Smears from cisternal fluid withdrawn before autopsy showed numbers of polymorphonuclear leucocytes and lymphocytes in all except those rabbits that had died within 6 to 8 hours. In these the cells were relatively few.

Histologically no meningeal exudate was present in these animals dying eight hours after injection, but purulent meningitis and chorioid plexitis appeared after 16 hours and were most marked in the animal surviving for 48 hours.

SUMMARY

Clinical and histopathologic meningitis can be produced in rabbits by intracisternal injection of sufficiently virulent meningococci. A histopathological picture identical with the above, without clinical reaction, was found in animals which had received boiled suspensions of meningococci. A clinical and pathologic picture essentially identical to that produced by living meningococci was produced by inoculation with filtered suspensions.

These findings suggest that experimental meningitis in rabbits may not be purely an infection, and that intoxication may play an important part.

REFERENCES

(1) Zdrodowski, P., and Voronine, E.: Ann. l'Inst. Pasteur, 1932, 48, (5), 617.
(2) Murray, E. G. D.: Med. Res. Council, Special Rep., Series, No. 124, 1929.
(3) Shwartzman, G.: J. Inf. Dis., 1929, 45, 232.

REPORT OF COMMITTEE ON MILK

CONFERENCE OF STATE AND PROVINCIAL HEALTH AUTHORITIES
JUNE 2, 1932

The Committee on Milk of the Conference of State and Provincial Health Authorities has this year included the following subjects in its deliberations:

(1) Shall health authorities permit the use of the term "natural milk" to denote what has hitherto been termed "raw milk"?

(2) Shall health authorities approve the process of short time-high temperature pasteurization, and, if so, under what specifications?

(3) What requirements should be made in case a milk distributor desires to distribute two grades of milk, or both raw and pasteurized milk?

(4) Shall health authorities approve the practice of recombining surplus skimmed milk and cream, and, if so, under what restrictions?

(5) In what manner can State health and agricultural departments cooperate with each other in connection with the public health and economic phases of the milk problem?

(6) What practical methods can be devised and recommended to increase the percentage of pasteurized milk for sale in the smaller cities and towns of the country?

(1) Shall health authorities permit the use of the term "natural milk" to denote what has hitherto been termed "raw milk"?

The committee believes that the only truly natural milk for human babies is human milk. Nature intended cows' milk for calves, and cows' milk is used for babies only as the next best thing to human milk. Raw milk which has been cooled is not more natural than raw milk which has been heated or pasteurized. Both cooling and heating retard the growth of certain kinds of bacteria. Heating, however, also devitalizes all disease bacteria which can be conveyed through milk. This is not true of cooling. Therefore, while cooling is an important public health measure, heating is an even more important one.

For these reasons the committee considers dangerous to the public health any movement or policy the result of which would be to mislead the milk consumer into thinking that Grade A Raw Milk is more natural and therefore better for babies than Grade A Pasteurized Milk. Public health authorities should therefore not

permit the use of the word "natural" in the labeling of either raw or pasteurized milk or cream.

(2) *Shall health authorities approve the process of short time-high temperature pasteurization, and, if so, under what specifications?*

The process of short time-high temperature pasteurization has been studied and approved by the New York State Health Department and the Pennsylvania State Health Department. The Committee on Milk Sanitation of the engineering section of the American Public Health Association, the Committee on Milk Supply of the Conference of State Sanitary Engineers, and the Public Health Service have intensively studied the process and have outlined specifications for short time-high temperature pasteurization upon which the approval of health authorities should be based. Therefore, it is the opinion of the Committee on Milk of the Conference of State and Provincial Health Authorities that the process has been sufficiently intensively studied by expert milk sanitarians to justify its general approval by health authorities under the restrictions recommended in a memorandum of the United States Public Health Service dated February, 1932.

(3) *What requirements should be made in case a milk distributor desires to distribute two grades of milk, or both raw and pasteurized milk?*

The Public Health Service Milk Ordinance makes the following requirements: "If more than one grade of milk is sold by any distributor, separate receiving, pasteurizing, cooling, and bottling equipment shall be provided for each grade, and the equipment for each grade shall be located in separate buildings or in separate rooms of the same building."

The committee believes that these precautions are necessary in order to minimize the danger of lower grades of milk finding their way into Grade A bottles, or, in fact, of raw milk being bottled as pasteurized milk.

(4) *Shall health authorities approve the practice of recombining surplus skimmed milk and cream, and, if so, under what restrictions?*

The committee is informed by the State health officer of Delaware that it is the practice in certain cities for pasteurization plants to add cheap cream from one source to cheap surplus skimmed milk from another source, and then sell the mixture as sweet fluid milk in competition with ordinary sweet milk.

The committee believes that this practice should be forbidden by health authorities unless both skimmed milk and cream come from inspected sources which comply with the legal requirements for sweet milk and cream and unless the resulting product is so labeled as to show its true character. The committee bases this conclusion upon the belief that improperly produced milk and cream are not as

safe as properly produced milk and cream, even though the process of pasteurization is later applied in both cases.

(5) *In what manner can State health and agricultural departments cooperate with each other in connection with the public health and economic phases of the milk problem?*

The committee believes that the primary functions of State health departments with reference to milk supplies should be—

(*a*) The encouragement of the adoption of the Public Health Service Milk Ordinance by municipal, county, and district health departments, and advisory assistance in the enforcement thereof.

(*b*) The rating at least once each year of the excellence of the public health supervision exercised by the various local health units.

(*c*) The encouragement from the public health point of view of the optimum consumption of properly produced and properly pasteurized milk.

The committee further believes that the primary functions of State agricultural departments with reference to milk supplies should be—

(*d*) The education of the dairy farmer as to the most sanitary and economical method of breeding, feeding, and housing cattle;

(*e*) The education of the dairy industry as to the most sanitary and economical method of producing, transporting, processing, and delivering milk supplies; and

(*f*) The promotion from the economic point of view of the dairy industry of optimum pasteurized milk consumption.

The committee believes that State health departments can effectively cooperate with State agricultural departments with reference to items (*d*) and (*e*) by making no requirements which are not justified from the public health point of view, and by interpreting justified requirements in a manner which will permit the most economic methods of compliance, consistent with effectiveness.

On the other hand, State agricultural departments can cooperate with State health departments with reference to item (*a*) by encouraging and educating the dairy industry, through county agents and other channels, to support the local adoption of the Public Health Service milk ordinance, and to comply with the ordinance after it has been adopted. The county agents can do much to insure that the dairy industry understands that compliance with the health department requirements is an important factor in promoting the welfare of the dairy industry, in that compliance with health department requirements increases the prestige and therefore the salability of the milk supply, as well as the amount consumed. Advice given by the county agents should, of course, be consistent with the instructions and advice given by the local milk inspector, unless the local milk inspector gives

improper advice, in which case the matter should be referred to the local health officer.

State health and agricultural departments can effectively combine forces with respect to items (c) and (f), namely, the encouragement of optimum pasteurized milk consumption from the public health and economic points of view. In encouraging milk consumption both health and agricultural agencies should insure that the educational approach to the consumer is consistent with sound public health advice.

(6) *What practical methods can be devised and recommended to increase the percentage of pasteurized milk for sale in the smaller cities and towns of the country?*

The committee believes that this is a very important problem, since the milk-borne outbreak reports of the Public Health Service and the American Child Health Association clearly indicate that the vast majority of milk-borne outbreaks of disease occur in small communities in connection with raw milk supplies. It is believed that the solution of this problem should be largely through educational means and that compulsory pasteurization ordinances should be passed only after the educational program has reached and convinced an unmistakable majority of the population. The local health officers of communities in which any considerable percentage of the market milk is still sold raw are urged to use an educational approach similar to that recommended in the Public Health Service Milk Sanitation Program under the chapter heading What Policy Should the Health Officer Adopt with Reference to Pasteurization and with Reference to Increasing to the Optimum the Per Capita Consumption of Milk?

Furthermore, the dairy industry, through the agency of such an organization as the National Dairy Council, could with advantage inaugurate a persistent radio program which would combine a campaign for adequate milk consumption with one for the encouragement of the use of pasteurized milk only. If the National Dairy Council or other dairy organization undertakes such a radio program, the United States Public Health Service and the various State and city health departments should assist in furnishing the necessary educational material.

Earle G. Brown, *Chairman*

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COURT DECISION RELATING TO PUBLIC HEALTH

Death of hospital interne from epidemic meningitis held compensable under workmen's compensation act.—(Illinois Supreme Court; Arquin *v.* Industrial Commission, 181 N. E. 613; decided June 24, 1932.) In an action under the workmen's compensation act, brought by a widow to recover compensation for the death of her husband, it appeared that the deceased was an interne in the contagious ward of the Cook County Hospital. From December 1 until December 6, 1928, the deceased was continuously engaged in the treatment of patients suffering from epidemic meningitis and made spinal punctures upon such patients. He became ill with the disease on December 6 and died two days later. The contention was made that epidemic meningitis was not an accidental injury for which compensation could be allowed, but the supreme court held that the deceased "died as a result of an accidental injury arising out of and in the course of his employment."

DEATHS DURING WEEK ENDED JULY 23, 1932

Summary of information received by telegraph from industrial insurance companies for the week ended July 23, 1932, and corresponding week of 1931. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)

	Week ended July 23, 1932	Corresponding week, 1931
Policies in force	71, 774, 641	75, 023, 856
Number of death claims	11, 998	13, 054
Death claims per 1,000 policies in force, annual rate	8. 7	9. 1
Death claims per 1,000 policies, first 29 weeks of year, annual rate	10. 0	10. 3

Deaths [1] from all causes in certain large cities of the United States during the week ended July 23, 1932, infant mortality, annual death rate, and comparison with corresponding week of 1931. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)

[The rates published in this summary are based upon mid-year population estimates derived from the 1930 census]

City	Week ended July 23, 1932				Corresponding week, 1931		Death rate [2] for the first 29 weeks	
	Total deaths	Death rate [2]	Deaths under 1 year	Infant mortality rate [3]	Death rate [2]	Deaths under 1 year	1932	1931
Total (85 cities)	7, 559	10. 8	593	[4] 49	10. 2	585	11. 8	12. 7
Akron	34	6. 7	7	87	6. 1	3	7. 6	8. 0
Albany [5]	31	12. 4	1	20	9. 3	6	14. 2	14. 5
Atlanta [6]	71	13. 1	2	19	16. 0	12	13. 7	15. 8
White	39	10. 9	1	15	10. 5	6	10. 8	12. 4
Colored	32	17. 5	1	29	26. 9	6	19. 4	22. 5
Baltimore [5] [6]	203	12. 9	17	60	12. 0	12	13. 8	15. 2
White	142	11. 1	11	50	11. 7	10	12. 8	13. 9
Colored	61	21. 2	6	96	13. 1	2	18. 3	21. 2
Birmingham [6]	70	13. 2	8	83	9. 5	9	11. 5	14. 9
White	33	10. 0	2	33	6. 9	2	9. 0	11. 1
Colored	37	18. 4	6	162	13. 7	7	15. 7	19. 6

See footnotes at end of table.

Deaths [1] *from all causes in certain large cities of the United States during the week ended July 23, 1932, infant mortality, annual death rate, and comparison with corresponding week of 1931*—Continued

City	Week ended July 23, 1932				Corresponding week, 1931		Death rate for the first 29 weeks	
	Total deaths	Death rate	Deaths under 1 year	Infant mortality rate	Death rate	Deaths under 1 year	1932	1931
Boston	194	12.9	22	66	11.6	19	14.8	14.8
Bridgeport	21	7.4	2	36	9.2	2	11.1	11.7
Buffalo	112	10.0	7	34	10.9	10	13.1	13.9
Cambridge	26	11.9	0	0	8.7	1	13.1	12.7
Camden	26	11.4	2	35	7.4	4	15.0	14.8
Canton	21	10.1	2	50	8.3	3	9.8	10.6
Chicago [5]	671	10.0	53	52	9.4	65	10.3	11.4
Cincinnati	180	20.4	6	30	14.3	6	15.5	16.8
Cleveland	153	8.7	9	29	10.1	20	11.3	11.8
Columbus	88	15.4	7	70	12.7	2	14.0	14.4
Dallas [6]	73	13.5	9		12.0	13	10.9	12.0
White	55	12.3	8		11.3	12	10.0	10.6
Colored	18	19.3	1		15.4	1	15.1	18.5
Dayton	51	12.8	6	86	12.0	6	12.2	12.7
Denver	63	11.2	5	49	16.1	7	14.8	14.6
Des Moines	35	12.5	2	34	11.5	1	11.6	11.7
Detroit	218	6.6	20	36	6.6	19	8.0	8.9
Duluth	18	9.2	1	29	11.8	0	10.9	11.0
El Paso	32	15.6	5		14.4	11	14.0	16.5
Erie	18	7.9	0	0	6.2	1	11.9	10.9
Evansville	29	14.3	3	100	5.5	1	10.4	11.9
Fall River [5] [7]	22	10.0	1	27	5.4	1	12.4	12.1
Flint	21	6.5	4	59	5.7	4	7.9	7.6
Fort Wayne	21	9.1	2	52	10.6	2	10.5	11.2
Fort Worth [6]	41	12.6	1		10.0	6	10.4	11.4
White	31	11.3	1		8.6	4	9.9	10.9
Colored	10	19.6	0		17.3	2	13.4	13.7
Grand Rapids	27	8.1	1	17	7.9	1	9.1	9.6
Hartford	41	12.6	3	40				
Houston [6]	77	12.4	7		10.1	6	11.1	11.5
White	49	10.7	5		7.8	4	10.3	10.7
Colored	28	17.1	2		16.3	2	13.4	13.8
Indianapolis [6]	92	12.8	8	65	13.7	9	13.0	14.4
White	76	12.1	6	55	13.2	6	12.6	13.9
Colored	16	18.1	2	137	17.3	3	15.8	17.7
Jersey City	62	10.1	4	33	11.0	9	11.6	12.3
Kansas City, Kans [6]	22	9.3	2	44	6.4	0	12.5	13.6
White	16	8.4	1	27	4.7	0	12.1	12.6
Colored	6	13.2	1	128	13.3	0	14.1	17.9
Kansas City, Mo	95	11.9	9	102	11.5	7	12.5	14.0
Knoxville [6]	24	11.2	2	51	7.2	3	12.2	13.2
White	15	8.4	0	0	5.1	2	11.2	12.1
Colored	9	25.7	2	539	17.6	1	17.3	18.9
Long Beach	29	9.4	0	0	8.9	3	9.1	10.0
Los Angeles	270	10.2	18	53	9.4	17	10.7	11.1
Louisville [6]	74	12.5	8	73	11.7	4	13.7	15.1
White	60	12.0	8	83	10.6	4	12.4	13.6
Colored	14	15.3	0	0	17.5	0	20.7	23.7
Lowell [7]	21	11.0	0	0	10.9	3	14.1	13.2
Lynn	11	5.6	0	0	10.7	0	11.1	10.5
Memphis [6]	98	19.4	6	65	16.1	5	16.8	16.9
White	53	17.0	4	68	14.0	4	13.2	13.9
Colored	45	23.4	2	60	19.5	1	22.6	21.7
Miami [6]	24	11.5	2	56	10.7	1	12.3	12.8
White	18	11.1	2	78	9.6	1	11.0	11.2
Colored	6	13.0	0	0	14.4	0	16.2	16.3
Milwaukee	121	10.5	13	62	8.4	10	9.0	10.0
Minneapolis	122	13.2	15	98	11.8	5	10.7	12.0
Nashville [6]	71	23.7	11	164	15.4	7	15.5	17.4
White	45	20.6	5	98	13.0	3	14.1	14.9
Colored	26	31.7	6	374	21.9	4	19.4	23.9
New Bedford [7]	20	9.3	2	58	11.6	4	11.8	13.1
New Haven	40	12.9	0	0	13.8	5	12.5	12.6
New Orleans [6]	179	19.7	16	91	15.4	13	16.1	17.5
White	109	16.9	10	87	11.4	6	13.6	14.2
Colored	70	26.6	6	98	25.2	7	22.0	25.7

See footnotes at end of table.

Deaths[1] *from all causes in certain large cities of the United States during the week ended July 23, 1932, infant mortality, annual death rate, and comparison with corresponding week of 1931*—Continued

City	Week ended July 23, 1932				Corresponding week, 1931		Death rate for the first 29 weeks	
	Total deaths	Death rate	Deaths under 1 year	Infant mortality rate	Death rate	Deaths under 1 year	1932	1931
New York	1,225	8.9	82	37	9.3	81	11.1	11.9
Bronx Borough	178	6.7	9	26	6.7	9	8.2	8.7
Brooklyn Borough	391	7.6	35	39	8.6	35	10.3	11.0
Manhattan Borough	477	14.0	32	46	13.6	32	17.0	18.1
Queens Borough	136	5.9	6	25	6.6	4	7.1	7.7
Richmond Borough	43	13.4	0	0	14.4	1	14.2	14.2
Newark, N. J	71	8.3	4	22	9.6	5	11.0	12.4
Oakland	41	7.2	3	38	9.8	2	10.6	10.8
Oklahoma City	42	10.7	7	96	9.5	3	10.3	11.6
Omaha	60	14.3	0	0	11.8	5	13.2	14.3
Paterson	30	11.3	1	18	13.5	5	13.2	14.3
Peoria	24	11.3	5	138	11.1	0	11.3	13.4
Philadelphia	382	10.1	28	43	10.6	28	13.0	14.1
Pittsburgh	152	11.7	16	73	11.1	18	13.2	15.6
Portland, Oreg	61	10.3	2	26	14.3	3	11.3	12.0
Providence	54	11.0	2	19	11.0	6	13.7	13.5
Richmond [6]	49	13.8	8	121	17.0	5	14.1	16.5
White	28	11.0	6	135	17.1	4	11.7	14.1
Colored	21	20.8	2	92	16.8	1	20.4	22.4
Rochester	70	10.9	4	38	7.5	2	12.5	12.6
St. Louis	274	17.2	17	61	12.7	8	13.9	16.5
St. Paul	67	12.5	4	43	7.7	0	10.4	11.4
Salt Lake City [5]	39	14.0	4	63	6.6	0	11.0	12.2
San Antonio	61	12.9	11	------	10.0	4	14.1	15.5
San Diego	26	8.3	1	22	13.3	1	14.3	14.1
San Francisco	141	11.1	4	28	10.8	7	12.6	13.2
Schenectady	13	7.0	2	58	10.3	2	10.5	10.9
Seattle	71	9.9	4	40	10.8	1	11.8	11.8
Somerville	9	4.4	1	40	5.0	0	9.5	9.8
South Bend	18	8.5	2	58	10.1	1	7.8	8.6
Spokane	21	9.4	4	107	10.8	2	12.3	12.5
Springfield, Mass	37	12.5	3	51	11.0	1	11.7	12.5
Syracuse	36	8.7	3	39	10.5	3	12.0	12.1
Tacoma	31	14.9	4	110	10.2	1	12.4	12.5
Tampa [6]	21	10.2	2	57	10.4	1	11.8	12.6
White	15	9.2	2	70	10.1	1	11.1	11.6
Colored	6	13.8	0	0	11.7	0	14.4	16.1
Toledo	83	14.4	6	65	9.8	6	12.1	12.5
Trenton	37	15.6	6	119	13.5	2	16.3	17.3
Utica	25	12.7	1	28	8.2	1	15.8	14.6
Washington, D. C.[6]	143	15.1	15	84	12.5	12	16.9	16.5
White	95	13.9	8	66	10.4	4	15.0	14.1
Colored	48	18.4	7	125	18.2	8	21.9	22.7
Waterbury	12	6.2	1	33	6.7	2	9.6	10.1
Wilmington, Del.[7]	32	15.7	1	23	12.2	4	15.7	14.7
Worcester	36	9.5	3	42	10.6	4	12.7	13.0
Yonkers	15	5.5	1	26	5.3	0	8.0	9.0
Youngstown	28	8.4	3	49	9.0	1	10.0	11.0

[1] Deaths of nonresidents are included. Stillbirths are excluded.
[2] These rates represent annual rates per 1,000 population, as estimated for 1932 and 1931 by the arithmetical method.
[3] Deaths under 1 year of age per 1,000 estimated live births. Cities left blank are not in the registration area for births.
[4] Data for 81 cities.
[5] Deaths for week ended Friday.
[6] For the cities for which deaths are shown by color, the percentages of colored population in 1930 were as follows: Atlanta, 33; Baltimore, 18; Birmingham, 38; Dallas, 17; Fort Worth, 16; Houston, 27; Indianapolis, 12; Kansas City, Kans., 19; Knoxville, 16; Louisville, 15; Memphis, 38; Miami, 23; Nashville, 28; New Orleans, 29; Richmond, 29; Tampa, 21; and Washington, D. C., 27.
[7] Population Apr. 1, 1930; decreased 1920 to 1930, no estimate made.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended July 30, 1932, and August 1, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 30, 1932, and August 1, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended July 30, 1932	Week ended Aug 1, 1931	Week ended July 30, 1932	Week ended Aug. 1, 1931	Week ended July 30, 1932	Week ended Aug 1, 1931	Week ended July 30, 1932	Week ended Aug. 1, 1931
New England States:								
Maine	1	3		1	22	11	0	0
New Hampshire					3	4	0	0
Vermont	2				7	1	0	0
Massachusetts	37	25		2	147	93	1	3
Rhode Island	1	5	2	1	7	35	0	0
Connecticut	3	8	1	2	34	28	0	0
Middle Atlantic States:								
New York	39	69	[1] 4	[1] 4	445	389	3	9
New Jersey	15	12	1		141	65	0	0
Pennsylvania	31	42			184	214	5	5
East North Central States.								
Ohio	24	27	6	3	87	263	1	1
Indiana	26	13	19	7	7	14	8	2
Illinois	26	54	16	133	73	200	2	8
Michigan	16	22			293	62	1	3
Wisconsin	4	12	12	8	101	83	2	1
West North Central States:								
Minnesota	3	3	4	2	17	17	2	2
Iowa	6	4			3	5	0	0
Missouri	12	8	2		13	4	1	5
North Dakota	6	4			5	10	1	0
South Dakota		1				1	0	0
Nebraska	3	2			4	2	0	0
Kansas	6	5			16	6	0	0
South Atlantic States:								
Delaware		2				3	0	0
Maryland [2]	6	12		1	7	19	0	1
District of Columbia	9	9	2		2	9	0	1
Virginia	9				37		0	
West Virginia	7	3		6	51	59	2	3
North Carolina [3]	22	17	26		79	18	0	2
South Carolina [3]	8	6	74	47	24	29	2	2
Georgia [3]	8	4	10	6		7	0	0
Florida	5	6			2	5	0	1

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 30, 1932, and August 1, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended July 30, 1932	Week ended Aug. 1, 1931	Week ended July 30, 1932	Week ended Aug. 1, 1931	Week ended July 30, 1932	Week ended Aug. 1, 1931	Week ended July 30, 1932	Week ended Aug. 1, 1931
East South Central States:								
Kentucky	8	-------	-------	-------	-------	42	0	2
Tennessee	3	1	2	2	2	2	1	1
Alabama [3]	19	7	4	2	1	9	1	1
Mississippi	7	14	-------	-------	-------	-------	0	1
West South Central States:								
Arkansas	5	1	2	-------	-------	5	0	0
Louisiana	13	15	1	4	31	-------	0	0
Oklahoma [4]	17	6	7	9	5	1	0	0
Texas [3]	36	4	38	5	5	6	1	0
Mountain States:								
Montana	1	-------	-------	-------	56	22	0	0
Idaho	3	1	-------	-------	-------	2	0	2
Wyoming	-------	-------	-------	-------	3	3	0	0
Colorado	6	7	-------	-------	2	23	0	0
New Mexico	9	2	-------	-------	1	-------	1	0
Arizona	2	2	2	-------	-------	4	0	0
Utah [2]	-------	1	-------	7	2	6	0	1
Pacific States:								
Washington	1	1	-------	-------	8	14	0	2
Oregon	-------	-------	7	4	14	13	0	1
California	26	45	32	8	54	90	2	0
Total	491	485	274	264	1,995	1,898	37	60

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended July 30, 1932	Week ended Aug. 1, 1931	Week ended July 30, 1932	Week ended Aug. 1, 1931	Week ended July 30, 1932	Week ended Aug. 1, 1931	Week ended July 30, 1932	Week ended Aug. 1, 1931
New England States:								
Maine	1	4	5	-------	0	0	3	0
New Hampshire	0	1	6	0	0	0	0	6
Vermont	0	0	2	1	0	3	0	0
Massachusetts	1	25	105	81	0	0	5	8
Rhode Island	1	8	9	5	0	0	1	2
Connecticut	0	37	19	7	0	0	1	4
Middle Atlantic States:								
New York	6	433	122	108	4	2	31	24
New Jersey	2	16	43	49	0	0	7	6
Pennsylvania	19	1	116	75	0	0	30	16
East North Central States:								
Ohio	5	1	96	92	0	17	56	32
Indiana	0	0	20	18	3	19	28	12
Illinois	10	15	73	68	14	15	36	25
Michigan	2	13	75	66	1	6	11	5
Wisconsin	4	11	12	16	0	1	9	3
West North Central States:								
Minnesota	3	10	22	20	0	1	1	3
Iowa	3	1	10	9	4	11	4	1
Missouri	0	2	29	13	2	1	40	38
North Dakota	1	0	2	6	9	13	5	3
South Dakota	0	0	1	1	2	1	3	4
Nebraska	0	0	1	13	3	4	1	5
Kansas	1	0	13	19	2	21	19	12
South Atlantic States:								
Delaware	0	0	0	2	0	0	3	0
Maryland [2]	0	0	16	17	0	0	23	28
District of Columbia	0	1	7	4	0	0	4	2
Virginia	2	-------	11	-------	0	-------	55	-------
West Virginia	1	1	4	8	0	1	50	36
North Carolina [3]	2	1	85	22	2	1	59	47
South Carolina [3]	0	3	1	1	0	0	56	94
Georgia [3]	0	1	5	6	0	7	77	60
Florida	0	1	2	6	0	0	5	6

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 30, 1932, and August 1, 1931—Continued

Division and state	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended July 30, 1932	Week ended Aug. 1, 1631	Week ended July 30, 1932	Week ended Aug. 1, 1931	Week ended July 30, 1932	Week ended Aug. 1, 1931	Week ended July 30, 1932	Week ended Aug. 1, 1931
East South Central States.								
Kentucky	2	0	20	21	6	0	108	13
Tennessee	1	1	7	6	3	3	141	89
Alabama [2]	0	0	7	12	0	1	29	58
Mississippi	1	1	5	4	2	7	39	55
West South Central States.								
Arkansas	2	0	0	6	4	11	29	46
Louisiana	0	1	4	1	0	0	71	76
Oklahoma [4]	0	1	8	14	1	7	48	38
Texas [3]	5	2	23	15	8	1	40	15
Mountain States.								
Montana	0	1	2	2	4	0	4	3
Idaho	0	0	1	3	0	3	6	1
Wyoming	0	0	2	2	0	2	0	1
Colorado	0	1	8	9	0	7	5	4
New Mexico	0	1	3	0	0	1	16	0
Arizona	0	0	1	0	2	0	2	5
Utah [2]	0	0	0	1	0	0	1	0
Pacific States:								
Washington	1	0	14	5	5	5	4	4
Oregon	1	0	6	2	4	8	3	6
California	6	3	39	42	9	7	10	16
Total	83	508	1,012	878	94	187	1,179	912

[1] New York City only.
[2] Week ended Friday.
[3] Typhus fever, week ended July 30, 1932, 17 cases: 2 cases in North Carolina, 1 case in South Carolina, 1 case in Georgia, 5 cases in Alabama, and 8 cases in Texas
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa and for 1931 are exclusive of Tulsa only.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week:

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
June, 1932										
Arkansas		8	45	99	2	211	1	9	11	68
Idaho		4	2		13		0	5	4	13
Kansas	3	20	6	2	632		2	54	36	22
Louisiana	1	67	28	86	34	41	2	33	6	102
Montana		5	14		379		0	24	33	7
Nevada			1		179		0	4	1	
Oklahoma [1]	1	22	31	80	257	20	4	34	50	60
Oregon	2	18	62	3	598		0	31	28	11
South Dakota		17	20		25		1	19	5	9
Texas	1	83	87	695		4	12	71		48
Virginia	5	34	535	45	374	103	2	73	0	81
Washington	3	44	5		705		14	63	46	23
Wisconsin	6		52		5,066		6	229	4	8

[1] Exclusive of Oklahoma City and Tulsa.

June, 1932	Cases
Anthrax:	
Arkansas	2
Botulism:	
Washington	2
Chicken pox:	
Arkansas	14
Idaho	12
Kansas	111
Louisiana	10
Montana	51
Nevada	13
Oklahoma [1]	18
Oregon	54
South Dakota	37
Virginia	222
Washington	248
Wisconsin	1,026
Dengue:	
Louisiana	3
Dysentery:	
Louisiana	2
Oklahoma [1]	26
Oregon	1
Dysentery and diarrhea	
Virginia	1,566
German measles:	
Kansas	2
Montana	3
Washington	12
Hookworm disease.	
Arkansas	1
Louisiana	28
Impetigo contagiosa:	
Montana	9
Oklahoma [1]	3
Oregon	19
Leprosy:	
Louisiana	1
Lethargic encephalitis:	
Louisiana	2
Wisconsin	2
Mumps:	
Arkansas	20
Idaho	25
Kansas	154
Louisiana	4
Montana	30
Oklahoma [1]	14
Oregon	65
South Dakota	18
Washington	58
Wisconsin	382
Ophthalmia neonatorum:	
Oklahoma [1]	1
Paratyphoid fever.	
Kansas	1
Louisiana	3
Texas	2
Virginia	2
Rabies in animals:	
Louisiana	10
Washington	1
Rocky Mountain spotted or tick fever:	
Idaho	9
Montana	27

[1] Exclusive of Oklahoma City and Tulsa.

	Cases
Rocky Mountain spotted or tick fever—Con.	
Nevada	5
Oregon	10
South Dakota	3
Virginia	2
Scabies:	
Montana	1
Oregon	19
Septic sore throat:	
Louisiana	1
Montana	1
Oklahoma [1]	8
Oregon	1
Silicosis:	
Montana	1
Tetanus:	
Kansas	3
Louisiana	5
Oklahoma [1]	1
South Dakota	1
Tick paralysis:	
Montana	1
Trachoma:	
Arkansas	3
Oklahoma [1]	8
South Dakota	8
Trench mouth:	
Oklahoma [1]	2
Trichinosis.	
South Dakota	1
Tularæmia:	
Louisiana	4
Montana	3
Oregon	3
Wisconsin	1
Typhus fever:	
Virginia	2
Undulant fever:	
Kansas	10
Louisiana	4
Montana	3
South Dakota	1
Virginia	2
Washington	1
Wisconsin	3
Vincent's angina:	
Kansas	10
Nevada	5
Oklahoma [1]	2
Oregon	3
Whooping cough:	
Arkansas	56
Idaho	1
Kansas	496
Louisiana	36
Montana	52
Nevada	20
Oklahoma [1]	56
Oregon	73
South Dakota	40
Virginia	1,012
Washington	48
Wisconsin	1,079

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 97 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 33,980,000. The estimated population of the 90 cities reporting deaths is more than 32,420,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended July 23, 1932, and July 25, 1931

	1932	1931	Estimated expectancy
Cases reported			
Diphtheria:			
46 States	490	487	-----------
97 cities	176	215	407
Measles:			
45 States	3,282	2,411	-----------
97 cities	934	854	-----------
Meningococcus meningitis:			
46 States	40	59	-----------
97 cities	17	29	-----------
Poliomyelitis:			
46 States	48	307	-----------
Scarlet fever:			
46 States	1,086	951	-----------
97 cities	409	338	343
Smallpox:			
46 States	102	204	-----------
97 cities	7	19	26
Typhoid fever:			
46 States	1,247	758	-----------
97 cities	138	101	90
Deaths reported			
Influenza and pneumonia:			
90 cities	319	278	-----------
Smallpox:			
90 cities	0	0	-----------

City reports for week ended July 23, 1932

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded, and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible but no year earlier than 1923 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	2	1	0	----------	0	0	0	0
New Hampshire:								
Concord	0	0	0	----------	0	0	0	0
Manchester	0	1	0	----------	0	0	0	1
Nashua	0	0	0	----------	0	0	0	0

City reports for week ended July 23, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND—con.								
Vermont:								
Barre	1	0	0	....	0	0	0	0
Burlington	0	0	0	....	0	0	0	0
Massachusetts:								
Boston	12	17	9	....	0	53	31	15
Fall River	0	1	0	1	1	9	0	3
Springfield	0	1	0	....	0	15	4	0
Worcester	8	0	1	....	0	4	0	1
Rhode Island:								
Pawtucket	0	1	0	....	0	0	0	0
Providence	3	3	2	....	0	6	0	3
Connecticut:								
Bridgeport	1	1	0	1	0	15	0	2
Hartford	0	1	0	2	0	1	2	1
New Haven	4	0	0	2	0	0	3	1
MIDDLE ATLANTIC								
New York:								
Buffalo	9	6	0	....	0	9	0	8
New York	87	124	43	3	6	218	107	71
Rochester	2	2	0	....	0	1	2	5
Syracuse	9	2	0	....	0	6	1	0
New Jersey:								
Camden	0	2	1	....	0	0	0	0
Newark	9	8	1	....	0	51	42	3
Trenton	0	0	0	1	0	5	0	3
Pennsylvania:								
Philadelphia	16	30	1	1	2	8	21	8
Pittsburgh	12	10	2	2	0	20	2	11
Reading	2	2	0	....	0	5	0	1
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	2	3	2	....	1	0	0	6
Cleveland	20	13	3	1	0	21	8	3
Columbus	0	2	5	....	0	15	0	1
Toledo	7	2	0	....	0	17	0	4
Indiana:								
Fort Wayne	0	1	3	....	0	0	0	0
Indianapolis	1	2	0	....	0	1	16	3
South Bend	0	0	0	....	0	0	0	2
Terre Haute	0	0	0	....	0	1	0	1
Illinois:								
Chicago	42	54	14	....	0	65	4	20
Springfield	1	0	0	....	0	1	0	2
Michigan:								
Detroit	18	24	5	....	0	240	5	10
Flint	7	1	0	....	0	4	3	1
Grand Rapids	6	0	0	....	0	3	2	0
Wisconsin:								
Kenosha	1	0	0	....	0	21	0	0
Madison	3	0	1	....	....	6	1	....
Milwaukee	15	7	2	1	1	29	4	6
Racine	16	0	0	....	0	1	3	0
Superior	1	0	0	....	0	0	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth	4	0	0	....	0	0	0	0
Minneapolis	13	8	2	....	0	7	2	5
St. Paul	4	2	0	....	1	0	7	3
Iowa:								
Des Moines	0	0	0	....	....	0	0	....
Sioux City	5	0	1	....	....	1	0	....
Waterloo	0	0	1	....	....	0	1	....
Missouri:								
Kansas City	1	1	2	....	0	5	3	2
St. Joseph	0	0	0	....	0	0	0	4
St. Louis	5	15	6	....	....	2	4	4
North Dakota:								
Fargo	0	0	0	....	0	1	0	0
Grand Forks	0	0	0	....	....	0	0	....

City reports for week ended July 23, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
WEST NORTH CENTRAL—continued								
South Dakota:								
Aberdeen	4	0	0			0	0	
Sioux Falls	0	0	0			0	0	
Nebraska:								
Omaha	0	1	3		0	2	0	5
Kansas:		0						
Topeka	1	0	1		0	11	3	0
Wichita	0		0		0	0	0	1
SOUTH ATLANTIC								
Delaware:								
Wilmington	0	1	0		0	0	0	2
Maryland:								
Baltimore	8	8	2		0	0	27	9
Cumberland	0	0	0		0	0	0	2
Frederick	0	0	0		0	0	0	0
District of Columbia:								
Washington	7	4	4	1	1	4	0	6
Virginia:								
Lynchburg	0	0	0		0	0	0	0
Norfolk	0	0	0		0	1	0	1
Richmond	1	1	0		0	0	0	1
Roanoke	0	0	0		0	0	0	1
West Virginia:								
Charleston	0	0	0		0	0	0	0
Huntington	0		2		0	1	0	
Wheeling	3	0	1		0	6	0	1
North Carolina:								
Raleigh	1	0	0		0	0	0	0
Wilmington	3	0	0		0	0	0	1
Winston-Salem	0	0	0		0	3	0	4
South Carolina:								
Charleston	0	0	0	14	0	0	0	1
Columbia	0	0	0		0	1	0	2
Georgia:								
Atlanta	0	2	1	3	0	0	0	6
Brunswick	0	0	0		0	0	0	1
Savannah	0	0	2		0	1	0	0
Florida:								
Miami	0	3	1		0	0	0	0
Tampa	0	1	1		0	0	0	0
EAST SOUTH CENTRAL								
Kentucky:								
Covington		0						
Lexington	1		0		0	0	0	2
Tennessee:								
Memphis	5	0	0		0	0	0	5
Nashville	0	0	0		0	0	0	0
Alabama:								
Birmingham	0	1	1		0	0	0	0
Mobile	0	0	2		0	0	0	0
Montgomery	0	0	1			0	1	
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith	0	0	1			0	0	
Little Rock	0	0	0		0	0	0	2
Louisiana:								
New Orleans	0	5	0	1	1	0	0	8
Shreveport	0	0	0		0	0	1	0
Oklahoma:								
Muskogee	0	0	2			0	0	
Oklahoma City	0	1	0		1	5	0	2
Tulsa	0	1	1			1	0	
Texas:								
Dallas	0	2	8	1	1	2	0	5
Fort Worth	0	0	1		1	0	0	2
Galveston	0	0	0		0	0	0	1
Houston	0	2	1		2	5	0	3
San Antonio	0	1	4		0	0	0	1

City reports for week ended July 23, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MOUNTAIN								
Montana:								
Billings	0	0	0	----------	0	1	0	0
Great Falls	0	0	0	----------	0	0	0	1
Helena	8	0	0	----------	0	0	0	0
Missoula	0	0	0	----------	0	0	0	2
Idaho:								
Boise	1	0	0	----------	0	0	0	1
Colorado:								
Denver	7	5	4	----------	0	9	10	5
Pueblo	5	0	0	----------	0	0	0	0
New Mexico:								
Albuquerque	0	0	0	----------	0	0	1	0
Arizona:								
Phoenix	0	9	0	----------	0	0	0	0
Utah:								
Salt Lake City	13	1	0	----------	0	3	2	0
Nevada:								
Reno	0	0	0	----------	0	0	0	0
PACIFIC								
Washington:								
Seattle	18	1	0	----------	----------	1	2	----------
Spokane	6	0	0	----------	----------	8	0	----------
Tacoma	1	2	0	----------	0	3	0	1
Oregon:								
Salem	0	0	0	----------	0	2	0	----------
California:								
Los Angeles	36	17	29	10	0	21	20	11
Sacramento	1	2	0	----------	0	0	1	0
San Francisco	6	5	4	----------	0	9	1	4

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND											
Maine:											
Portland	0	3	0	0	0	0	0	1	0	1	21
New Hampshire:											
Concord	0	0	0	0	0	0	0	0	0	0	4
Manchester	0	1	0	0	0	1	0	0	0	0	17
Nashua	0	0	0	0	0	0	0	0	0	0	--------
Vermont:											
Barre	0	0	0	0	0	0	0	0	0	0	3
Burlington	0	0	0	0	0	0	0	0	0	2	3
Massachusetts:											
Boston	21	38	0	0	0	4	1	0	1	60	194
Fall River	1	4	0	0	0	0	0	0	0	0	22
Springfield	1	3	0	0	0	1	0	0	0	6	34
Worcester	2	6	0	0	0	2	0	0	0	0	--------
Rhode Island:											
Pawtucket	1	0	0	0	0	0	0	0	0	0	16
Providence	4	7	0	0	0	0	0	1	0	6	54
Connecticut:											
Bridgeport	1	0	0	0	0	1	0	0	0	3	21
Hartford	1	4	0	0	0	0	0	0	0	5	40
New Haven	1	0	0	0	0	1	0	0	0	20	40
MIDDLE ATLANTIC											
New York:											
Buffalo	8	13	0	0	0	5	0	0	0	25	112
New York	42	35	0	0	0	98	15	16	2	126	1,225
Rochester	3	18	0	0	0	4	0	0	0	7	64
Syracuse	2	12	0	0	0	0	0	0	0	25	36

City reports for week ended July 23, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
MIDDLE ATLANTIC—continued											
New Jersey:											
Camden	1	3	0	0	0	2	0	1	0	0	26
Newark	6	3	0	0	0	0	0	1	0	12	--------
Trenton	0	1	0	0	0	4	0	0	0	11	37
Pennsylvania:											
Philadelphia	24	27	0	0	0	19	4	1	0	47	382
Pittsburgh	12	14	0	0	0	6	1	3	0	51	152
Reading	0	3	0	0	0	0	0	0	0	11	20
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	6	5	1	0	0	7	1	3	1	10	180
Cleveland	11	20	1	0	0	16	2	2	0	53	153
Columbus	2	5	1	0	0	2	0	2	1	24	88
Toledo	3	5	1	0	0	4	1	3	1	21	81
Indiana:											
Fort Wayne	1	0	0	0	0	2	0	0	1	0	22
Indianapolis	2	1	3	0	0	5	0	5	0	12	--------
South Bend	0	0	0	0	0	1	0	0	0	2	18
Terre Haute	1	1	0	0	0	1	0	0	0	0	31
Illinois:											
Chicago	48	37	1	0	0	32	4	4	1	87	671
Springfield	0	1	0	0	0	1	0	2	0	1	24
Michigan:											
Detroit	31	32	1	0	0	19	2	1	0	150	218
Flint	5	1	0	0	0	1	0	1	1	21	21
Grand Rapids	4	1	0	0	0	0	0	0	0	27	27
Wisconsin:											
Kenosha	1	0	0	0	0	0	0	0	0	6	7
Madison	1	1	0	0	--------	--------	0	0	--------	15	--------
Milwaukee	8	7	1	0	0	3	1	0	0	70	121
Racine	1	0	0	0	0	0	0	0	0	0	15
Superior	1	0	0	0	0	0	0	1	0	1	8
WEST NORTH CENTRAL											
Minnesota:											
Duluth	4	0	0	0	0	1	0	0	0	0	18
Minneapolis	10	5	0	0	0	3	0	1	0	9	122
St. Paul	6	4	0	0	0	3	0	0	0	31	73
Iowa:											
Des Moines	1	0	0	0	--------	--------	0	1	--------	0	35
Sioux City	0	1	1	0	--------	--------	0	0	--------	1	--------
Waterloo	1	0	0	0	--------	--------	0	0	--------	0	--------
Missouri:											
Kansas City	2	18	0	0	0	6	1	5	0	56	95
St. Joseph	0	0	1	0	0	1	0	2	0	4	38
St. Louis	8	2	1	0	0	17	3	8	1	14	--------
North Dakota:											
Fargo	0	0	0	0	0	1	0	0	0	0	5
Grand Forks	1	0	0	0	--------	--------	0	0	--------	0	--------
South Dakota:											
Aberdeen	0	0	0	0	--------	--------	0	0	--------	0	--------
Sioux Falls	0	0	0	0	--------	--------	0	0	--------	0	5
Nebraska:											
Omaha	1	1	0	1	0	1	0	0	1	3	60
Kansas:											
Topeka	1	0	0	0	0	0	0	0	0	33	10
Wichita	0	0	0	0	0	0	0	0	0	2	24
SOUTH ATLANTIC											
Delaware:											
Wilmington	1	4	0	0	0	0	0	0	0	2	32
Maryland:											
Baltimore	7	9	0	0	0	17	4	1	0	40	203
Cumberland	0	0	0	0	0	0	0	1	0	2	11
Frederick	0	0	0	0	0	0	0	0	0	0	3
District of Col.:											
Washington	6	3	0	0	0	15	2	4	0	5	143

City reports for week ended July 23, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
SOUTH ATLANTIC—continued											
Virginia:											
Lynchburg	0	2	0	0	0	0	1	1	0	33	13
Norfolk	0	1	0	0	0	3	1	0	0	3	41
Richmond	2	5	0	0	0	6	1	1	0	0	57
Roanoke	1	0	0	0	0	1	1	0	0	0	7
West Virginia:											
Charleston	0	1	0	0	0	1	0	0	0	0	16
Huntington	-----	0	-----	0	-----	-----	-----	2	-----	0	-----
Wheeling	0	0	0	0	0	0	0	1	0	5	17
North Carolina:											
Raleigh	0	0	0	0	0	2	1	0	1	3	25
Wilmington	0	0	0	0	0	0	0	0	0	0	16
Winston-Salem	0	1	1	0	0	0	1	0	0	20	19
South Carolina:											
Charleston	0	0	0	0	0	5	1	1	0	0	26
Columbia	0	0	0	0	0	1	2	1	0	1	19
Georgia:											
Atlanta	2	1	0	0	0	3	3	6	0	3	71
Brunswick	0	0	0	0	0	0	0	0	0	0	1
Savannah	0	0	0	0	0	2	1	5	0	1	82
Florida:											
Miami	1	0	0	0	0	3	0	0	0	0	24
Tampa	0	1	0	0	0	1	0	0	0	0	24
EAST SOUTH CENTRAL											
Kentucky:											
Covington	0	-----	0	-----	-----	-----	0	-----	-----	-----	-----
Lexington	-----	0	-----	0	0	0	-----	2	1	2	15
Tennessee:											
Memphis	1	0	1	0	0	5	8	4	0	8	98
Nashville	0	0	0	0	0	2	4	2	1	3	71
Alabama:											
Birmingham	0	3	0	0	0	7	4	4	0	10	70
Mobile	0	1	0	0	0	0	1	1	0	1	14
Montgomery	0	0	0	0	-----	-----	2	0	-----	0	-----
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	0	0	0	-----	-----	0	0	-----	0	-----
Little Rock	0	1	0	0	0	2	0	0	1	0	-----
Louisiana:											
New Orleans	4	3	0	0	0	13	5	[1] 28	1	0	179
Shreveport	0	0	0	0	0	4	2	1	3	2	51
Oklahoma:											
Muskogee	0	1	-----	0	-----	-----	-----	0	-----	0	-----
Oklahoma City	1	2	1	0	0	3	3	0	1	5	42
Tulsa	1	0	1	0	-----	-----	0	2	-----	18	-----
Texas:											
Dallas	2	3	0	0	0	4	2	4	2	2	73
Fort Worth	1	0	0	0	0	0	0	1	0	0	41
Galveston	0	0	0	0	0	1	0	0	0	0	19
Houston	1	3	1	0	0	6	1	3	0	0	77
San Antonio	1	3	0	0	0	3	1	2	1	0	61
MOUNTAIN											
Montana:											
Billings	0	0	0	0	0	0	0	0	0	0	7
Great Falls	1	0	1	0	0	0	0	0	0	1	9
Helena	0	0	0	0	0	0	0	0	0	0	5
Missoula	0	0	1	0	0	0	0	0	0	0	7
Idaho:											
Boise	0	0	0	0	0	0	0	0	0	0	6
Colorado:											
Denver	4	8	0	0	0	3	0	0	0	23	60
Pueblo	0	0	1	0	0	1	0	0	0	1	10

[1] Includes 24 nonresidents.

City reports for week ended July 23, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases, reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
MOUNTAIN—con.											
New Mexico:											
Albuquerque	0	0	0	0	0	1	0	0	0	0	10
Arizona:											
Phoenix	0	0	0	0	0	1	0	0	0	1	-------
Utah:											
Salt Lake City	1	1	1	0	0	0	0	0	0	11	39
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	2
PACIFIC											
Washington:											
Seattle	3	0	1	4	-------	-------	1	0	-------	2	-------
Spokane	0	0	2	1	-------	-------	0	1	-------	1	-------
Tacoma	1	3	2	0	0	0	0	0	0	0	31
Oregon:											
Salem	0	0	1	0	-------	-------	0	0	-------	12	-------
California:											
Los Angeles	12	14	2	1	0	24	3	3	0	96	270
Sacramento	1	1	0	0	0	2	2	[1] 2	0	5	20
San Francisco	6	2	0	0	0	14	1	0	0	16	141

Division, State, and city	Meningococcus meningitis: Cases	Meningococcus meningitis: Deaths	Lethargic encephalitis: Cases	Lethargic encephalitis: Deaths	Pellagra: Cases	Pellagra: Deaths	Poliomyelitis (infantile paralysis): Cases estimated expectancy	Poliomyelitis (infantile paralysis): Cases	Poliomyelitis (infantile paralysis): Deaths
NEW ENGLAND									
Massachusetts:									
Boston	0	0	0	0	2	0	1	0	0
Connecticut:									
Hartford	1	0	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York [2]	1	0	0	0	0	0	8	1	0
Pennsylvania:									
Philadelphia	1	0	0	0	1	0	1	5	0
Pittsburgh	0	1	0	0	0	0	1	0	0
EAST NORTH CENTRAL									
Indiana:									
Indianapolis	7	4	0	0	0	0	0	0	0
Illinois:									
Chicago	2	1	0	0	0	0	1	0	0
Springfield	0	0	0	0	0	0	0	0	1
Michigan:									
Detroit	1	2	1	0	0	0	0	2	0
Wisconsin:									
Racine	1	1	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis	0	0	0	0	0	0	0	1	0
St. Paul	0	0	0	0	0	0	0	1	0
Iowa:									
Des Moines	0	0	0	0	0	0	0	1	0
Missouri:									
Kansas City	1	0	0	0	1	1	0	0	0

[1] Nonresidents.
[2] Typhus fever, 4 cases: 1 case at New York City, N. Y.; 2 cases at Savannah, Ga.; and 1 case at Miami, Fla.

City reports for week ended July 23, 1932—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases estimated expectancy	Cases	Deaths
SOUTH ATLANTIC									
Maryland:									
Baltimore	1	1	1	0	0	0	1	0	0
District of Columbia:									
Washington	0	0	1	1	1	1	0	0	0
Virginia:									
Lynchburg	0	0	0	0	0	0	0	1	0
West Virginia:									
Charleston	0	0	0	0	0	0	0	1	0
South Carolina:									
Charleston	0	0	0	0	3	0	0	1	0
Columbia	0	0	0	0	0	1	0	0	0
Georgia:									
Brunswick	0	0	0	0	1	0	0	0	0
Savannah [1]	0	0	0	0	1	0	0	0	1
Florida: [1]									
Tampa	0	0	1	1	0	0	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis	0	0	0	0	1	0	0	0	0
Alabama:									
Birmingham	0	0	0	0	0	0	0	1	0
Mobile	0	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	0	0	0	0	0	0	0	1	0
Louisiana:									
New Orleans	1	0	0	0	0	1	0	0	0
Shreveport	0	0	0	0	1	1	0	0	0
Texas:									
Houston	0	1	0	0	0	0	0	0	0
San Antonio	0	0	0	0	0	0	0	1	0
MOUNTAIN									
New Mexico:									
Albuquerque	0	0	0	0	0	1	0	0	0
PACIFIC									
California:									
San Francisco	0	1	0	0	0	0	0	1	0

[1] Typhus fever, 4 cases: 1 case at New York City, N. Y.; 2 cases at Savannah, Ga.; and 1 case at Miami, Fla.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended July 23, 1932, compared with those for a like period ended July 25, 1931. The population figures used in computing the rates are estimated mid-year populations for 1931 and 1932, respectively, derived from the 1930 census. The 98 cities reporting cases have an estimated aggregate population of more than 34,000,000. The 91 cities reporting deaths have more than 32,400,000 estimated population.

Summary of weekly reports from cities, June 19 to July 23, 1932—Annual rates per 100,000 population, compared with rates for the corresponding period of 1931 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931	July 23, 1932	July 25, 1931
98 cities	[2] 38	54	[3] 44	[4] 47	[5] 31	43	[6] 32	42	[7] 27	33
New England	[8] 31	67	204	96	[9] 46	60	60	65	29	50
Middle Atlantic	38	47	27	53	28	50	28	37	21	34
East North Central	30	72	25	49	23	41	25	50	20	39
West North Central	61	42	59	33	40	31	[10] 51	31	30	33
South Atlantic	27	45	[3] 28	[3] 12	31	18	[11] 31	24	22	28
East South Central	[7] 25	23	12	12	[7] 6	23	[7] 12	29	[7] 25	12
West South Central	69	68	89	27	106	61	[12] 75	47	46	24
Mountain	17	9	26	[13] 9	17	17	17	61	34	35
Pacific	44	51	34	51	[14] 13	41	[14] 25	51	63	16

MEASLES CASE RATES

	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931	July 23, 1932	July 25, 1931
98 cities	[2] 517	568	[3] 371	[4] 384	[5] 241	316	[6] 240	181	[7] 144	133
New England	[8] 1,001	438	630	402	[9] 561	351	395	317	247	209
Middle Atlantic	376	511	345	284	188	311	214	144	143	111
East North Central	972	920	641	768	409	527	419	316	239	214
West North Central	104	297	57	140	74	103	[10] 86	61	55	34
South Atlantic	294	591	[3] 154	[3] 311	104	259	[11] 43	107	29	83
East South Central	[7] 12	593	0	352	[7] 0	117	[7] 6	117	[7] 0	106
West South Central	96	47	53	24	33	27	[12] 24	17	23	14
Mountain	543	479	431	[13] 215	267	122	155	122	112	174
Pacific	343	363	227	149	[14] 156	182	[14] 135	123	80	125

SCARLET FEVER CASE RATES

	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931	July 23, 1932	July 25, 1931
98 cities	[2] 172	163	[3] 136	[4] 105	[5] 84	79	[6] 86	70	[7] 63	53
New England	[8] 343	238	280	188	[9] 202	142	165	149	156	111
Middle Atlantic	211	195	168	135	82	89	98	68	57	56
East North Central	208	240	167	122	110	90	91	106	66	69
West North Central	61	78	63	31	45	44	[10] 72	42	59	20
South Atlantic	90	93	[3] 58	[3] 55	43	49	[11] 41	34	53	38
East South Central	[7] 19	65	29	47	[7] 0	53	[7] 37	23	[7] 25	6
West South Central	53	30	36	41	10	34	[12] 23	34	43	44
Mountain	155	96	52	[13] 36	86	52	9	26	78	0
Pacific	70	57	53	47	[14] 50	49	[14] 60	12	38	12

SMALLPOX CASE RATES

	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931	July 23, 1932	July 25, 1931
98 cities	[2] 2	8	[3] 2	[4] 6	[5] 1	2	[6] 1	3	[7] 1	3
New England	[8] 0	0	0	0	[9] 0	2	0	0	0	0
Middle Atlantic	0	1	0	0	0	0	0	0	0	0
East North Central	1	5	1	8	0	1	0	4	0	2
West North Central	6	19	2	10	2	4	[10] 0	4	2	10
South Atlantic	0	12	[3] 0	[3] 0	0	4	[11] 0	0	0	0
East South Central	[7] 12	18	6	23	[7] 6	6	[7] 0	0	[7] 0	6
West South Central	0	30	3	24	0	10	[12] 0	7	0	0
Mountain	0	70	17	[13] 0	43	0	26	0	0	0
Pacific	15	6	10	14	[14] 5	8	[14] 13	22	11	20

See footnotes at end of table.

Summary of weekly reports from cities, June 19 to July 23, 1932—Annual rates per 100,000 population, compared with rates for the corresponding period of 1931 [1]—Continued

TYPHOID FEVER CASE RATES

	Week ended—									
	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931	July 23, 1932	July 25, 1931
98 cities	[2] 10	10	[3] 13	[4] 10	[5] 12	14	[6] 13	13	[7] 21	16
New England	[8] 18	0	5	10	[9] 5	2	7	12	5	10
Middle Atlantic	4	4	4	5	5	8	8	8	10	8
East North Central	5	6	10	3	10	5	13	5	13	5
West North Central	11	10	6	10	11	19	[10] 15	2	30	19
South Atlantic	37	16	[3] 42	[3] 10	24	28	[11] 18	47	43	69
East South Central	[7] 44	35	75	41	[7] 69	59	[7] 69	35	[7] 69	47
West South Central	20	54	56	71	46	81	[12] 38	58	125	10
Mountain	9	52	9	[13] 36	17	35	9	26	0	0
Pacific	4	14	4	4	[14] 5	6	[14] 10	6	11	27

INFLUENZA DEATH RATES

	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931	July 23, 1932	July 25, 1931
91 cities	[2] 6	4	[3] 3	[4] 3	[5] 2	3	[6] 2	2	[7] 3	1
New England	[8] 3	2	0	0	[9] 0	2	7	0	2	0
Middle Atlantic	7	2	4	1	2	4	1	0	4	1
East North Central	3	6	4	1	3	2	2	4	1	2
West North Central	9	0	0	9	0	0	[10] 0	3	3	0
South Atlantic	6	6	[3] 2	[3] 4	0	4	[11] 6	4	2	2
East South Central	[7] 7	6	13	19	[7] 7	6	[7] 0	0	[7] 0	0
West South Central	13	7	0	10	3	7	0	3	13	8
Mountain	9	0	0	[13] 9	9	0	9	0	0	0
Pacific	7	2	2	5	[14] 0	0	[14] 0	0	0	2

PNEUMONIA DEATH RATES

	June 25, 1932	June 27, 1931	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931	July 23, 1932	July 25, 1931
91 cities	[2] 56	67	[3] 53	[4] 64	[5] 50	59	[6] 46	47	[7] 40	44
New England	[8] 65	60	62	36	[9] 53	79	74	50	62	31
Middle Atlantic	61	·76	61	67	63	59	46	63	49	55
East North Central	43	51	35	61	32	47	31	29	33	32
West North Central	52	38	64	77	35	88	[10] 48	71	70	53
South Atlantic	73	103	[3] 52	[3] 67	67	71	[11] 58	40	73	44
East South Central	[7] 55	140	31	83	[7] 27	51	[7] 20	45	[7] 34	45
West South Central	61	90	91	90	57	86	91	45	67	52
Mountain	60	35	60	[13] 72	43	61	52	35	78	17
Pacific	51	41	44	46	[14] 36	31	[14] 33	24	37	43

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1932 and 1931, respectively.
[2] Hartford, Conn., and Covington, Ky , not included.
[3] Columbia, S. C., not included.
[4] Columbia, S. C., and Billings, Mont., not included.
[5] Barre, Vt., Covington, Ky., and San Francisco, Calif., not included.
[6] St. Paul, Minn., Raleigh and Winston-Salem, N. C., Covington, Ky., New Orleans, La., and San Francisco, Calif., not included.
[7] Covington, Ky., not included.
[8] Hartford, Conn , not included.
[9] Barre, Vt., not included.
[10] St. Paul, Minn., not included.
[11] Raleigh and Winston-Salem, N. C., not included.
[12] New Orleans, La., not included.
[13] Billings, Mont., not included.
[14] San Francisco, Calif., not included.

FOREIGN AND INSULAR

CANADA

Quebec Province—Communicable diseases—Week ended July 16, 1932.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended July 16, 1932, as follows:

Disease	Cases	Disease	Cases
Chicken pox	31	Poliomyelitis	10
Diphtheria	21	Scarlet fever	40
Erysipelas	3	Tuberculosis	72
German measles	1	Typhoid fever	31
Measles	49	Whooping cough	62
Ophthalmia neonatorum	1		

CUBA

Habana—Communicable diseases—Four weeks ended July 16, 1932.—During the four weeks ended July 16, 1932, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Chicken pox	1		Measles	4	
Diphtheria	2	2	Scarlet fever	4	
Leprosy		1	Tuberculosis	17	2
Malaria	11		Typhoid fever	12	4

JAMAICA

Communicable diseases—Four weeks ended July 16, 1932.—During the four weeks ended July 16, 1932, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island of Jamaica, outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Cerebrospinal meningitis		1	Lethargic encephalitis		2
Chicken pox	2	12	Puerperal fever	1	1
Diphtheria	1		Scarlet fever		1
Dysentery	2	2	Tuberculosis	36	67
Leprosy		1	Typhoid fever	4	42

PUERTO RICO

San Juan—Communicable diseases—Four weeks ended July 16, 1932.—During the four weeks ended July 16, 1932, cases of certain communicable diseases were reported in San Juan, P. R., as follows:

Disease	Cases	Disease	Cases
Chicken pox	3	Measles	26
Diphtheria	6	Mumps	3
Influenza	18	Typhoid fever	1
Malaria	17	Whooping cough	4

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place		Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Apr. 3–30, 1932	Week ended— May, 1932 7	May 14	May 21	May 28	June, 1932 4	June 11	June 18	June 25	July, 1932 2	July 9	July 16	July 23
China:																	
Amoy	C											3		15	149		
	D											2		11	85		
Canton	C			2	1			1	1	2	49	330	298	203	96	37	22
	D							1		1	22	152	90	73	24	7	2
Dairen	C														38		
Hankow	C	1	1		3		8					6	10	10	10		
	D				1		3							3	3		
Hong Kong	C												9	45	33	19	21
	D												9	18	33	8	7
Kwantung	C													P			
Macao	D														5		
Nanking	C											123	131	104	111	78	
	D											45	34	22	21	8	
Newchwang	C												1	5			
	D													4			
Shanghai	C					11	11	8	40	92	90	130	276	314	217	318	
	D						1	1	1	10	9	23	11	20	21	16	
Swatow [1]	C							1			1		49	48	46		
	D												3	3			
Tientsin	C										3	16	22	19	9		
	D											5	3	3	2		
Honduras [2]																	
India	C	10,001	5,826	4,952	6,295	1,497	1,126	923	840	852							
	D	5,267	2,788	2,358	3,194	731	592	400	447	427							
Bombay	C		1												1		
	D		1												1		
Calcutta	C	133	1,118	162	350	174	228	141	106	79	63	106	132	143	129		
	D	70	54	73	148	58	125	79	59	38	27	51	70	60	53		
Chittagong	C	6	1	2													
	D	1	22	1													

Madras	C		3	6													
	D		3	3													
Rangoon	C							1				1	2				
	D							1				1	1				
India (French):																	
Chandernagor	C					11		3	5			1					
	D					5		2	5			1					
Karikal	C	35	2														
	D	17															
Pondicherry Territory	C	15		2													
	D	15		2													
Pondicherry	C			1													
	D			1													
Indo-China (see also table below):																	
Pnompenh	C	2			1			1		1		1	1				
	D	2			1			1		1		1	1				
Saigon and Cholon	C	1	1	1	2	1	1	2	2	2	2	1	1	1			
	D				2	1	1	2	2	1	1	1	1	1			
Japan:																	
Kobe	C										1	1					
Tokyo	C										1	2					
Persia: Kouh Bezman	C				[3] 1												
Philippine Islands																	
Capiz Province	C	22	23														
	D	20	20														
Laguna Province	D													1			
Siam	C	1		1	2				8	8							
	D	1		2	1				7	4							
Bangkok	C	1		2	1							2					
	D	1		1													
On vessels:																	
S. S. Angora at Rangoon from Calcutta	C			1													
S. S. Narbada at Rangoon from Calcutta	C				1												
	D				1												
S. S. Shanghai Maru at Kobe from Shanghai	C									1							
S. S. President Wilson en route to Manila from Honolulu via Shanghai and Hong Kong	C												2				
	D												1				

[1] Local unofficial reports included 159 deaths from cholera in Swatow, China, from June 10 to 30, 1932.
[2] Later information indicates that the case in San Pedro, Honduras, reported as cholera in the Public Health Reports, vol. 47, No. 32, p. 1670, was probably food poisoning.
[3] A suspected case.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

CHOLERA—Continued

[C indicates cases; D, deaths; P, present]

Place		December, 1931	January, 1932	February, 1932	March, 1932			April, 1932			May, 1932			June, 1932	
					1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20
Indo-China (French) (see also table above):															
Annam [3]	C			4							93	20	21		
	D			4							7	2	6		
Cambodia [3]	C	3	12	5	6	1	3	4	1	20	12	6		13	16
	D	2	6	4	3	1	1	3		8	2	1		10	12
Cochin-China [3]	C	14	5	7	3	2	4	3	6	18	11	30		17	17
	D	7	4	5	2	1	2	2	3	13	8	21		16	12
Laos [3]	C							7							
	D							3							

[3] Reports incomplete.

PLAGUE [1]

Place		Jan. 10-Feb 6, 1932	Feb. 7-Mar. 5, 1932	Mar. 6-Apr 2, 1932	Apr 3-30, 1932	Week ended— May, 1932				June, 1932				July, 1932			
						7	14	21	28	4	11	18	25	2	9	16	23
Argentina:																	
Cordoba Province [2]	C	1			2												
Rosario	D								1								
San Luis Province	C										1	1					
Belgian Congo	C								2								
British East Africa (see also table below):																	
Tanganyika	C	10		2						19	1						
	D	10								11							
Uganda	C	31	8	4	39	11	9	6	11	16	25						
	D	26	6	4	36	7	8	6	10	15	24						
Canary Islands: Palma Island—Los Lanos	C	8					1										
	D	8															

Ceylon: Colombo	C	5	4	3	2	1	3		2	5	3	3	2	5	1		
	D	3	3	3	2	1	1		2	5	3	3	2	5	1		
Plague-infected rats		1		1	1	5	2	2		4							
China:																	
Kwang Chow Wan	C			8													
	D			8													
Shensi Province	C		P														
Dutch East Indies.																	
Java—																	
Surabaya	C	2															
	D	2															
Tegal	C		1														
Java and Madura	D	499	459	362	365	70	62	76	71	72							
West Java	C	201	141	213	239			41	44	45	63						
	D	200	139	213	237			41	43	45	63						
Ecuador (see table below).																	
Egypt:																	
Alexandria	C	2		2		1	2	1	8	1	2		1	3	1	1	1
	D						2		1	2	1	1		1	1	1	
Assiout	C	1															
	D	1															
Beheira	C	11			1	2				1	1						1
	D	2			1	3				1							2
Beni Suef	C				37	2											
	D				8	3											
Gharbieh	C									2		1					
	D										1						
Minieh	C	1		3													
	D	1		3													
Tanta	C	1															
	D	1															
Hawaii Territory:																	
Hawaii Island—																	
Hamakua—																	
Honokaa	C		2														
	D		2														
Plague-infected rats			1														
Kukaiau—Plague-infected rats									1	1							
Maui Island—																	
Makawao [3]	C		1														
	D		1														
Plague-infected rats			4														
India	C	7,892	8,593	9,724	5,197	684	474	256	259	133							
	D	3,971	4,970	5,543	3,219	505	360	203	192	91							
Bassein	C	1	4	9	5	2					2		1		2		
	D		4	7	4	2					2		1		1		
Bombay	C		5	8	19	2	2	1		1							
	D		5	6	15	1	2	1		1							
Plague-infected rats		57	109	117	122	25	21	1	11	3		9	11		5		

[1] Including plague in the United States and its possessions.
[2] 10 cases of bubonic plague were reported in Cordoba Province, Argentina, in January, 1932. They were distant from railroad and 500 kilometers from ports.
[3] 1 death from plague Aug. 1, 1932 was reported in Makawao District, Maui Island, Hawaii Territory.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE [1]—Continued

[C indicates cases; D, deaths; P, present]

Place		Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Apr. 3–30, 1932	Week ended— May, 1932: 7	14	21	28	June, 1932: 4	11	18	25	July, 1932: 2	9	16	23
India—Continued.																	
Madras	C				[4] 1												
	D				1												
Madras Presidency	C	2,951	70	158	69	18	5	6	11	13			13				
	D	155	47	86	24	4	4	1	2	8			2				
Rangoon	C		9	4	7				1				1	2			
	D	1	8	4	6									2			
Plague-infected rats			2	8	5		2		1		1		2	2	2		
Indo-China (see table below).																	
Iraq: Baghdad	C	5	3										1				1
	D		1														
Madagascar (see table below).																	
Morocco	C														5		
Peru (see table below).																	
Senegal (see table below).																	
Siam	C	1	1	7													
	D	1		3													
Southwest Africa.[5]																	
Syria: Beirut	C				2							1		2			1
Union of South Africa: Orange Free State	C	P	P	P													
	D			10													
United States: California—Los Angeles—Plague-infected rats					1	2					1						
On vessel:																	
Steamship Columbia, at Naples from Barcelona—Plague-infected rats													2				

[4] An imported case.

[5] 80 cases of plague with 15 deaths were reported in Ovamboland, Southwest Africa, up to Apr. 30, 1932. Antiplague measures have been taken.

Place		January, 1932	February, 1932	March, 1932	April, 1932	May, 1932	June, 1932
British East Africa (see also table above): Kenya	C	17	33	22	18	11	30
Ecuador:							
Province—							
Chimborazo	C	8	13		6	10	2
Loja	C	11					
Indo-China	C	17	P	P	9	2	1
	D	9			6	1	1
Madagascar:							
Province—							
Ambatolampy	C	23	40	25			
	D	23	38	25			
Ambositra	C	166	90	81	19		
	D	152	81	67	17		
Antsirabe	C	53	45	54	21		
	D	51	45	53	21		
Meavatanana	C			4			
	D			4			
Miarinarivo	C	15	13	9	6		
	D	15	12	9	6		
Moramanga	C	13	9	3			
	D	13	9	3			
Tananarive	C	203	148	71	42		
	D	196	140	70	40		
Peru	C	11	2				
	D	8	2				
Department—							
Canete	C	3					
Lambayeque	C						2
Libertad	C	1			28	33	
Otuzco	C					1	
Lima	C	6		1			
Lima	C		1	1	1	1	
	D		1				
Piura	C	1					
Senegal							
Dakar [6]	C			10			
	D			5			
Louga [6]	C					3	
	D					2	
Rufisque [6]	C					3	6
	D					3	6
Yombel [6]	C			9			
	D			5			

[6] Reports incomplete.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX

[C indicates cases; D, deaths; P, present]

Place		Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Apr. 3–30, 1932	Week ended— May, 1932: 7	14	21	28	June, 1932: 4	11	18	25	July, 1932: 2	9	16	23
Aden	C	2		1													
Algeria:																	
Algiers	C										1	1					
Constantine Department	C				2	1		1									
Philippeville	C				1												
Southern Territories	C		2														
Brazil:																	
Porto Alegre (alastrim)	C	34	19	5	8	2	2										
	D			1													
Santos	C	2														2	
British East Africa: Tanganyika	C	24	5	P		79	11			19							
	D	7	2							11							
British South Africa:																	
Northern Rhodesia	C	5															
Southern Rhodesia	C			4	7												
Canada:																	
British Columbia	C	25	17	9									1				
	D	4	9	3													
Manitoba	C	10			1												
Nova Scotia	C		1														
Ontario	C	6	21	4	6	1			23						1		
North Bay	C	1															
Quebec	C	1	8										1				
Saskatchewan	C	35	30	6	8	3	1	3	6		1		2		3		
China:																	
Amoy	C	183	121	43	17	3		2	3				1				
	D	91	44	25	11	2		2	2				1				
Canton	C	27	44	79	81	19	9	5	9	1	3	3	3	1			
	D		1	7	1	1											
Foochow	C	P	P	P	P		P		P		P		P				
Hankow	C	59	4	5	3	1	1	3									
	D	5	1														
Hong Kong	C	11	51	45	55	7	9	7	1	4	5	2	1	1		1	
	D	6	23	28	20	7	6	2	2	4	6	1	1	1			

Manchuria: Dairen	C	1	1	16	8	1		1			2	3					
	D				2	1		1			2	1					
Shanghai	C	163	167	102	90	16	6	5	6	3	3						
	D	62	67	45	35	6	5		2	1	2						
Swatow	C		1														
Tientsin	C	1	2	8	2	1				2							
	D		1	1													
Chosen (see table below).																	
Dahomey	C			6	5	2					15		9				
	D			1	1						6		1				
Dutch East Indies	C	1													6		
	D	1															
Egypt:																	
Alexandria	C			1			1	1				1				1	3
Cairo	C	1														1	
Suez	C		2	20	4	1											
	D			3													
Finland	C								1								
France (see table below)																	
Germany: Aix-la-Chapelle	C	1															
Gold Coast (see table below).																	
Great Britian																	
England and Wales	C	227	258	273	315	68	76	53	68	49	33	25	30	22	35	37	
London	C	100	136	129	137	41	39	25	29	49	18	15	18	19	28	27	
London and Great Towns	C	188	203	236	257	59	60	47	52	37	31	37	23	21	32	32	
Greece (see table below)																	
Guatemala (see table below)																	
Honduras[1]																	
Ceiba	D		1	2	2												
Puerto Castilla	C	1	4		4			1	P			2				1	
Tegucigalpa	C		5														
Tela	C			2	2				1								
Trujillo	C		35														
	D		5														
India	C	4,576	9,709	12,040	13,716	4,230	3,388	2,771	2,879	3,418							
	D	970	1,896	2,234	2,895	996	796	676	815	812							
Bassein	C	3			1												
	D				1												
Bombay	C	6	23	27	25	10	12	2	12	7	4	5	6	5	3		
	D	2	10	12	10	2	4	1	5	4	2	3	4	3	3		
Calcutta	C	27	102	159	133	17	35	22	19	15	16	21	12	12	12		
	D	15	54	115	99	12	29	16	10	17	14	8	8	9	10		
Chittagong	C			2			2										
	D			1			1										
Cochin	C	1	9	3	1												
Karachi	C	18	23	19	29	4	5	3	4	7	5	3	5	1			
	D	6	8	8	9		2	1	3	1	1	1	1				
Madras	C	9	15	51	53	17	10	10	10	3	8	5	6	8	8		
	D	3	4	16	11	2	4	2	3		3	2	3	2	3		

[1] 590 cases of smallpox with 15 deaths were reported in Honduras from July, 1931, to Feb. 16, 1932.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Apr. 3–30, 1932	Week ended— May, 1932: 7	14	21	28	June, 1932: 4	11	18	25	July, 1932: 2	9	16	23
India—Continued.																	
Moulmein	C	4	4	7	1						5						
Negapatam	C		1	1				1	2								
	D	1						1									
Rangoon	C	147	418	606	260	18	26	13	9	6	10	5	8	8	7		
	D	40	127	179	88	9	11	6	2	4	4	1	2	2	1		
Tuticorin	C	28	36	14	5	4						1					
	D	2	8	9	3	5						1					
Vizagaptam	C		3	2										1			
India (French):																	
Karikal	C	1	4	19	21	2	4	1	4		2						
	D	1	4	9	12	2	2	1	2		1						
Pondicherry Territory	C	32	20	29	22	3	5	28	11		4	2	1	3			
	D	27	20	20	19	3	5	28	11		4	2	1	3			
Indo-China (see also table below):																	
Pnompenh	C	1	2	1													
Saigon and Cholon	C	117	145	212	113	12	8	8	5	3	3	3	9	2		2	
	D	92	85	174	101	11	7	7	5	3	3	2	9	2		2	
Iraq:																	
Baghdad	C	10	4	20	27	4	7	10		14	9	3	1			1	4
	D	13	4	10	13	2	3	3		6	4	2					
Basra	C	2	2	11	4	1	1	4	2	2	4	2			4		
	D				4		1	1	1	1		1			1	1	
Ivory Coast (see table below).																	
Japan:																	
Kobe	C		1	2	1		1	7	2								
	D			1					1								
Nagasaki	C					1	4	4	4	1	1	1					
Osaka Prefecture [2]	C				93	34	48										
Osaka	C						1										
Taiwan	C	35	58	1	1												
Yokohama	C	2															
Mexico (see also table below):																	
Chihuahua	D		3	1	1			1			5						
Durango	D				1												
Jalisco (State)—Guadalajara	D	3		1	2		1	1		1	1						
Mexico City and surrounding territory	C	14	33	6	16	3	2	3	9	4	7	2	5	6	2		
	D		1		2		1										
Monterrey	C	1	8	1	2	1			1								

Saltillo	D							1	2	2				2	1		
San Luis Potosi	D	5	2	3	2	1			1		1						
Torreon	C	6	2	2	3		1	1	1	1	1	1					
	D	2	3	2	3		3			1			1				
Morocco (see table below).																	
Nigeria	C	217	16	750	116		939		104								
	D	120	2	111	19		316		17								
Palestine	C						1										
Poland	C						1			1							
Portugal:																	
Lisbon	C	98	50	38	26	10	5	8	6	2	5	6	12	1	2		
Oporto	C	3	14	14	21	3	5	8	8	4	9	8	2	8		10	
Salvador	C		85	10													
Sarawak	C															7	
Siam	C	1		2					1	8	1						
Sierra Leone [3]	D									4	1						
Straits Settlements	C	4	6	1													
	D	1		2													
Sudan (Anglo-Egyptian)	C	3	8	4	3						1	1	1				
	D	1	1														
Sweden: Malmo	C	9															
Syria (see table below).																	
Tunisia: Tunis	C			1													
Turkey (see also table below). Istanbul	C		1		1		1						2				
Union of South Africa																	
Cape Province	C				P	P	P	P	P	P							
Orange Free State	C				P												
Transvaal	C			P	P	P		P	P	P	P						
On vessels:																	
S. S. Cressington Court at Yokohama from Shanghai	C	1															
S. S. Bollington Court at Yokohama from Shanghai	C	1															
S. S. Victoria City at Brisbane from Shanghai	C	1															
S. S. Frauenfels at Suez from Calcutta	C			1													
S. S. Uwajima Maru at Osaka from Shanghai	C	1															
S. S. Hong Kheng at Singapore from Amoy, via Swatow and Hong Kong	C	1															
S. S. Hai Ning and S. S. Solviken at Hong Kong	C	P															
S. S. Merkara at Aden from Colombo	C	2															
S. S. Tjisadane at Hong Kong from Shanghai and Amoy	C	P															
S. S. Poafung at Shanghai	C	1															
S. S. Rajula at Penang from Negapatam	C	P															
S. S. MacGillivary at Suez from Rangoon	C			[4] 1													
S. S. Tainui at Southampton from New Zealand	C			[4] 1													
S. S. Glenbank at Suez from Aden	C			1													
S. S. Tuscania at Suez from Bombay	C									1							

[2] 264 cases of smallpox were reported in Osaka Prefecture, Japan, from Mar. 1 to May 28, 1932.
[3] From Mar. 6 to June 11, 1932, 814 cases of smallpox with 11 deaths, were reported in Sierra Leone.
[4] A suspected case.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		January, 1932	February, 1932	March, 1932	April, 1932			May, 1932			June, 1932	
					1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20
Gold Coast	C	2								2		
	D	1										
Indo-China (see also table above)	C	309	660	727	175	247	146	211	78		61	130
	D	148	231	342	80	97	64	46	37		27	41
Ivory Coast	C										19	
	D										1	
Syria. Beirut	C	5			1		1					

Place		December, 1931	January, 1932	February, 1932	March, 1932	April, 1932	May, 1932
Chosen	C	1	1	6	30	55	55
	D			3	9	5	8
France	C	1					
Greece	C				1	8	
Guatemala	C		5				
	D		1				

Place		December, 1931	January, 1932	February, 1932	March, 1932	April, 1932	May, 1932
Mexico (see also table above)	D	423					
Morocco	C	279	488	368	308	101	101
Turkey (see also table above)	C		31	22	2		
	D		1	1			

TYPHUS FEVER

Place		Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Week ended— April, 1932				May, 1932				June, 1932				July, 1932	
					9	16	23	30	7	14	21	28	4	11	18	25	2	9
Algeria:																		
Algiers	C	1	3	7		8	9	23	7	23	31		8	5	5	12	33	
Constantine Department	C	7		7									1				9	
Geryville	C	7	1															
Oran	C			1								4	10					
Bulgaria	C	44	66	44	15	6	15	9	10	7	16	5	4	5	3	3		
	D	6	6	2		3	4	2		2	1		1		1			
Chile																		
Antofagasta	C	1									1							
Iquique	C													1				
Santiago	C			1		1						1	1					
China																		
Hankow	C			5						1		1			1			
Swatow	C		2															
Tientsin	C									1								
Chosen (see table below).																		
Colombia: Cali	D		1															
Czechoslovakia (see table below).																		
Egypt																		
Alexandria	C		1		5	2	7					1	5	2		1		
Beheira	C		70	46				5										
	D		16					1										
Dakahlia	C										69							
Gharbieh	C		12					5										
	D							2										
Port Said	C												1					
Provinces	C	43	333	676	112	49	41	20	27	38	38	60	139					
	D	3	25	49	18	9	12	4	6	1	1		10					
Greece (see table below)																		
Irish Free State																		
Roscommon County—																		
Leitrim	C										1							
	D										1							
Roscommon	C												1					
Latvia (see table below).																		
Lithuania (see table below).																		
Mexico:																		
Mexico City, including municipalities in Federal District	C	25	20	7	3	2	3	3	2		5	1	2	4		1	3	3
	D	9	12	4	1		2					2		1		1	1	1
San Luis Potosi	D		1	1														

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, deaths, P, present]

Place		Jan. 10–Feb. 6, 1932	Feb 7–Mar. 5, 1932	Mar 6–Apr 2, 1932	Week ended— April, 1932: 9	April 16	April 23	April 30	May, 1932: 7	May 14	May 21	May 28	June, 1932: 4	June 11	June 18	June 25	July, 1932: 2	July 9
Morocco	C	6	59	29	9	7	3	15	3	7	7	2	13	5	4	4	5	
	D		6	6	1									3				
Palestine	C	3	1						1				2	1		1		1
Paraguay Asuncion	D		1															
Persia	C											123	69					
	D											4	5					
Poland	C	265	215	255	85	95	119	115	70	106	106	98	83	77	21	23	38	30
	D	10	21	22	5	10	11	13	7	4	5	9	3	4	1	6	3	3
Portugal:																		
Lisbon	C												2	5				
Oporto	C	1	1		10				3				4					
Rumania	C	264	296	270	89	62	55	46	61	60	53	60	40					
	D	13	28	31	8	6	5	2	8	8		7	5					
Tunisia: Tunis	C	1	24	81	32	6	20	19	26	15	13	1	13	9	6			
	D		3	8	4													
Turkey (see table below)																		
Union of Socialist Soviet Republics (see table below).																		
Union of South Africa:																		
Cape Province	C	P	P	P	P	P	P	P	P	P	P	P	P		P			
Natal	C		P				P	P	P					P	P			
Orange Free State	C	P	P	P	P	P	P	P	P	P	P				P			
Transvaal	C	P	P										P					
Venezuela: Caracas (see table below).																		
Yugoslavia (see table below).																		

Place		December, 1931	January, 1932	February, 1932	March, 1932	April, 1932	May, 1932
Chosen: Seoul	C			5	4		
	D			1			
Czechoslovakia	C	10	1			1	5
	D	3					
Greece	C	6	4	4	7	1	
	D	1					
Latvia	C	12					
Lithuania	C	20	21	10	32	25	13
	D	1	3	3	3	5	1

Place		December, 1931	January, 1932	February, 1932	March, 1932	April, 1932	May, 1932
Turkey	C	21	14	22	6	1	
	D	2	3	1	3		
Union of Socialist Soviet Republics	C	1,484	8,670	9,017	9,765		
Venezuela Caracas	D	1	2				
Yugoslavia	C	14	11	26	5	29	34
	D	1		2	1		6

YELLOW FEVER

Place		Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Week ended—														
					April, 1932				May, 1932				June, 1932				July, 1932		
					9	16	23	30	7	14	21	28	4	11	18	25	2	9	16
Bolivia [1]																			
Brazil:																			
Bahia State—Esplanada	C								P										
Ceara State	C							1											
	D							1											
Espirito Santo State	C			2	1	P	P	P											
	D			2	1														
Santa Teresa (about 56 miles from Victoria)	D		1													1			
Parahyba State	C															1			
	D																1		
Pernambuco State	D				1														
Dahomey: Porto Novo	C			1															
	D			1															
Gold Coast																			
Avudua	C			1	1														
Cape Coast	C			P															
Tamale	C			1															
Yapei	C		1									1							
Nigeria	C																		1
Upper Volta	C																		1
	D																		

[1] Indirect reports show cases suspected to have been yellow fever in Southern Bolivia during April, 1932.

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SPECIAL ARTICLE

The Metamorphoses of Streptococci into Spore-bearing Rods and Filterable Forms

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CONTENTS

PUBLIC HEALTH REPORTS

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THE METAMORPHOSES OF STREPTOCOCCI INTO SPORE-BEARING RODS AND INTO FILTERABLE FORMS

By ALICE C. EVANS, *Senior Bacteriologist, United States Public Health Service*

INTRODUCTION

In an earlier study (1926) Evans and Freeman described a streptococcus obtained from the mesencephalon and heart blood of a case (E. H.) of epidemic encephalitis. It was of the alpha type, producing a greenish zone around the colonies on blood agar. We mentioned a spore-bearing rod which was cultivated from the filtrate of emulsion of the brain from this case, and which was also encountered frequently throughout the studies on the streptococcus. In another paper (1927) I reported finding this same type of spore-bearing rod as well as the streptococcus in the five strains of herpes virus and in the single strain of encephalitis virus studied. In the present paper I propose to describe the rod form and to present evidence showing that the rod, the streptococcus, and a filterable form are different phases in the life history of the same organism. There will be no discussion as to what may be the relationship of this organism to the diseased condition in which it is frequently found.

The term mutation can not be applied to the transformations which occur in the organism under consideration, for this biologic term is used to describe irreversible changes. The transformations described in this paper occurred in every strain studied, and they were reversible; hence the various forms are to be regarded as stages in the cycle of an organism with a complex life history. The biologic term "metamorphosis" seems applicable to the transformations which occur in this organism.

It has been demonstrated repeatedly in the many studies on bacterial variability by numerous investigators that changes in form as well as in cultural, biochemic, and antigenic properties may occur in strains of bacteria admittedly pure. No attempt will be made in this paper to summarize the evidence against the monomorphic theory. There will be cited only some of the most important of those works which bear directly on the two kinds of transformations which streptococci undergo in brain tissue or in the first generations in culture m^edia after a prolonged sojourn in brain tissue, as shown in this paper.

Rosenow (1922) was the first investigator to observe the filterability of the streptococcus cultivable from encephalitic material. He had previously (1916) noted the filterability of the streptococcus cultivable from poliomyelitic material. Rosenow's observations on the streptococcus of encephalitis were confirmed by the writer (1926, 1927). Later Hadley, Delves, and Klimek described a method of cultivation by which several species of common pathogenic bacteria were able to enter a filterable stage of development. They reported success in cultivating the greening streptococcus from two glycerolated samples of herpes-encephalitis virus, and also from the filtrate of one of them.

Among the French investigators, Handuroy and Lesbre reported that, by a special method of cultivation, streptococci of the hemolytic or nonhemolytic type could be reduced to filterable forms, from which the bacterial forms developed again. Their observations were soon confirmed by Urbain.

Having been found in the filterable state by so many investigators, it appears now to be established that, under certain conditions, streptococci of the alpha and beta types may occur in forms small enough to pass through filters which hold back bacteria of the sizes found when grown on ordinary media. The other transformation of streptococci described here, the complete transformation to pure cultures of spore-bearing aerobic rods, has not been reported by previous investigators, although several investigators have noted the transient appearance of heterologous forms in their cultures of streptococci or *B. subtilis*. Sédallian and Goumand described bacillary forms as transitional stages in the evolution of streptococci from the filterable to the nonfilterable phase. Handuroy and Lesbre also noted pleomorphic stages before the ordinary streptococcal forms developed from filtrates. Tunnicliff cultivated from convalescing scarlet fever patients bacillary forms which reverted to the typical streptococcus in subcultures; and Frendzlowa and Szymanowski observed *B. subtilis* growing like streptococci in an antiserum.

Of interest in this connection is the extensive work of Cunningham, who has shown that *Bacillus saccharobutyricus*, an anaerobic spore-bearing rod of the soil, can be transformed into an aerobic spore-bearing micrococcus by gradual training under incomplete anaerobic conditions. Cunningham's observations were a confirmation of Bredemann's, made 20 years previously.

Spore-bearing rods are such frequent contaminators of bacterial cultures that they are, as they should be, discarded without thought when they make an occasional appearance. Consequently, no attention has been paid to the transformations which bacteriologists, working with freshly isolated cultures of streptococci, must have observed many times.

In this report of the transformation of streptococci to spore-bearing rods, and of spore-bearing rods to streptococci, due consideration has been given to the possibility of contaminations. Assurance that the changes in morphology were not due to contamination depends in part upon the great number of transformations observed with the possibility of contamination always in mind, and the reversibility of the metamorphosis. The repeated observations of changed morphology would not alone be proof, however, that those changes were due to metamorphosis. The convincing proof was in the pleomorphism of the individual cells of the cultures undergoing transformation, as shown in stained microscopic preparations and recorded in the accompanying photographs. When sparsely growing cultures were undergoing the transformation from coccoid to bacillary form, or *vice versa*, growing as streptococci on one medium and as spore-bearing rods on another medium, and when the individual cells of the transforming cultures showed distinctly double chains of coccoid bodies within the rods, as in Figures 15 and 16, or diplococci and rods in the same chains, as in Figure 11, there could be no doubt that a metamorphosis was actually occurring.

The observations recorded in this paper were made several years ago, and the conclusion that streptococcus and rod and filterable forms are all phases in the life cycle of one organism was stated in a previous publication (1929).

It is to be noted that certain conditions are necessary to bring about the transformations. It appears that in the body the germs exist in filterable form, or as highly pleomorphic bacteria. (See figs. 1 and 12.) It is only with difficulty that the forms existing in the body can adjust themselves to growth in ordinary media; and during the first few days of incubation, before complete adjustment has been made, there is a wavering from one form to the other. Once established on ordinary media, the one or the other form multiplies indefinitely without variation.

SOURCES OF MATERIAL

As already mentioned, both the streptococcus and the rod forms of the organism were cultivated from all of the six so-called herpes and encephalitis viruses studied. Twenty cases of epidemic encephalitis were also studied. Of these, the rod was cultivated from 11 (from the spinal fluid of 4 and from the blood of 7 patients, and from the brain taken at necropsy in 3 cases). The streptococcus was cultivated from 5 of the 20 cases (from the spinal fluid of one, and from the blood of 3 patients, and from necropsy material in 2 cases—from the brain of one and from the heart blood of both).

TECHNIQUE

The technique was the same as that described in the earlier papers. Precautions against contamination of culture medium and utensils were carefully observed. For example, the chopped meat medium, made like ordinary beef infusion broth, except that the ground meat was not discarded but placed in the test tubes with the broth, was sterilized at 15 pounds for 1½ hours. The agar used was prepared with beef infusion broth in the usual manner, except that the broth was strained through wire gauze instead of being filtered through cotton or paper. The plain agar is designated vitamin agar. Blood agar was prepared by the addition of 5 per cent rabbit's blood to the vitamin agar. Glucose agar was prepared by adding 1 per cent glucose to the vitamin agar.

The inoculation of a series of agar slopes is mentioned frequently in the description of operations. This was done with a platinum loop or needle, according to the estimated density of growth in the inoculum. The three or four or more slopes of the series were streaked without flaming the loop or needle. If it was presumed that the inoculum was very heavily seeded with organisms, the needle was cleansed by plunging it back and forth in the agar before proceeding to the inoculation of the next tube. It was the aim to have the first slope of the series heavily seeded, and the last slope so lightly seeded that colonies would be well isolated.

Gram-safranin was found to be the most useful stain for this study. Giemsa's stain and carbol-fuchsin were also frequently used.

In the filtration experiments, Berkefeld filters 2½ inches by ⅝ inch were used. The N type was used most commonly, the V type occasionally. In the description of procedures the type will be given whenever the filter is mentioned. When an emulsion of tissue was to be filtered, it was first centrifugated at low speed to get rid of the particulate matter. In order to ascertain the sterility of the apparatus, sterile broth was passed through it before the experimental material was filtered. The filtered broth was planted in meat medium and incubated with the experimental material. Every time that a filter was used, its efficiency was tested by heavily inoculating the material to be filtered with a young culture of *Serratia marcescens* (*Bacillus prodigiosus*). Failure of growth of the test organism was regarded as proof of the efficiency of the filter. Pressure for the filtration was obtained by means of a water pump.

Intracerebral rabbit inoculations were always with 0.25 c c of diluted or undiluted culture introduced through the trephined skull of an anæsthetized rabbit.

FORM OF THE ORGANISM IN THE HUMAN BRAIN AND SPINAL FLUID

It can not be assumed that the forms of bacteria which appear in cultures are the predominant forms in the human body. The organism as it occurs in the human brain is shown in Figure 1. The slide from which this photograph was taken was smeared with the mesencephalon from a fatal case (C. D.), in which death occurred after three weeks of acute illness.

The autopsy was performed 15 hours after death, the body having been kept in a morgue at about 2° C. in the meantime. Four slides smeared with different parts of the mesencephalon were examined carefully. No bacteria were found on three of the slides, but on the fourth slide an area was found with myriads of bacteria in clumps surrounded by scattered bacteria. They appeared as diplococci or as small irregular rods, taking the stain unevenly. From the distribution of bacteria on the slides it is apparent that they were not scattered in the brain tissue, as would have occurred in case of agonal invasion, but they occurred in compact clumps, one of which was broken in preparing this smear. The bacteria seen in Figure 1 were not readily cultivable, for out of four tubes of meat medium planted with pieces of mesencephalon, only one became turbid, and it was not until the ninth day that growth appeared in that one culture. It is unlikely that the bacterial forms shown in Figure 1 are filterable. It seems more probable that the filterable phase of the organism is invisible in the tissue.

In smears of human spinal fluid taken during the acute stage of encephalitis, both diplococci and rods may sometimes be found. Figures 2 and 3 are from different fields of the same smear of spinal fluid taken from a patient (V. D.) on May 14, 1926, when she was in a critical condition on about the eleventh day of illness. Figure 2 shows a rod with a characteristic granule, and also a single coccus, and Figure 3 shows a diplococcus and a single coccus. Single isolated cocci were common in this smear, but few diplococci or rods were found. Two days after the first lumbar puncture a second sample of spinal fluid was taken, when the patient was still in a critical condition. In smears of this sample stained with carbol-fuchsin a few rods could be made out. A small group of them is shown in Figure 4. The bacteria seen in the spinal fluid of patient V. D. can not be regarded as agonal invaders, for the patient recovered, and is still well (1932).

DESCRIPTION OF THE ROD FORM

When grown in culture medium, the rod form is motile; it produces heat-resistant spores which are central or excentric (see Fig. 5); it liquefies gelatin and peptonizes milk. It forms a pellicle on broth. Sugar-free broth is rendered alkaline; acid is produced in glucose and

saccharose broths; it may or may not be produced in lactose broth. On agar the growth is spreading, in irregular, opaque colonies, which usually have more delicate granular margins. Growth at room temperature is less rapid than at 37° C. Staining with Gram-safranin is usually positive, but it may be negative or mottled, varying with the age of the culture or the conditions under which it was grown. The above description applies to all the strains of the rod encountered in this study, but there were quantitative variations between the strains, as, for example, in the strength of the proteolytic enzyme.

CULTIVATION OF THE ROD FORM FROM INFECTED TISSUES

The protocols for the case E. H., from which the spore-bearing rod was first cultivated, show repeatedly the notation "Contaminated with *B. subtilis.*" The first cultivation was in meat medium and on agar slopes planted with filtrate of the emulsified brain. This culture was inoculated into the brains of rabbits for the sole reason that it was thought possible that the "virus" might be present in spite of the supposed contamination. The cultures proved to be highly virulent for rabbits when inoculated intracerebrally, but they were put aside because the idea that spore-bearing rods could be associated with epidemic encephalitis seemed too preposterous to be considered.

As the study of the streptococcus progressed, the rod form was encountered repeatedly. It was occasionally cultivated from the streptococcus form, as described farther on; it was cultivated from additional cases of epidemic encephalitis; and it was cultivated from the six well-known strains of virus received from other laboratories. (Their histories were described in an earlier paper. One strain was from the brain in a case of encephalitis; four strains were cultivated from herpetic vesicles; and one strain was from the spinal fluid in a case of syphilis.) The spore-bearing rods invaded the field of study repeatedly until they could be ignored no longer. In fact it was impossible to carry on inoculation experiments with either the rod or coccus form of the organism without encountering the other, unless the death of the animal occurred within a day or two after inoculation. If the bacterial organism, particularly the rod form, remained in the brain several days, changes of morphology occurred.

TRANSITION FROM STREPTOCOCCUS TO ROD FORM

A record of some of the observed transformations from streptococcus to rod follows:

The rod form was derived from the streptococcus strain P107 (which was isolated from the mesencephalon of case E. H.), in medium planted with the brain of rabbit 168. The rabbit was inoculated intravenously with 2 c c of streptococcus culture P107. This culture had been passed previously through four rabbits by intracerebral

inoculation, causing death within a few hours in each case. Two days after its inoculation, rabbit 168 was found in a lethargic condition, with rigidity and incoordination. On the following day the rabbit died. Both the streptococcus and the rod were cultivated from the brain. The rod proved to be highly virulent for rabbits when inoculations were intracerebral. (Inoculation of 0.25 c c of meat medium culture usually caused death in less than 18 hours.) This strain of rod was passed in pure culture through a series of six animals.

Figure 6 shows what appears to be a transitional stage between the streptococcus and the rod form in a smear of the brain of monkey 39, inoculated intracerebrally with streptococcus P107 after passage through seven rabbits. The monkey died three days after inoculation. The protocol for this animal was given in an earlier paper (1926). In Figure 6 the cocci appear as buds attached to the walls of rods, an arrangement seen again in Figures 8 and 9 and in several other photographs discussed farther on.

Another strain of streptococcus, P95, from nasal washings of case E. H., taken a few days before death, gave rise to the rod form in the third culture generation after passage through two rabbits. After this culture had been held in the ice box for 188 days, subcultures were made in meat medium and on vitamin agar slopes. Both the streptococcus and the rod appeared in the subcultures. Inoculation of the old culture into the brain of a rabbit (No. 248) resulted in symptoms typical of those following inoculation of virulent culture, followed by death. Both the streptococcus and the rod were recovered from the brain. The old culture was allowed to stand in the ice box for 36 days longer, then another rabbit (No. 357) was inoculated intracerebrally. Tremors, incoordination, and rigidity of the limbs developed. The rabbit was chloroformed on the eighth day and the rod in pure culture was recovered from the brain.

The details of the procedure and the observations made in the cultivation of one of the strains of streptococcus from the blood of case V. D. illustrate the intimate association of streptococcus and rod form and the ready conversion of one form into the other in the unstable condition of the organism as it was commonly observed in cultures planted with human tissues or fluids.

On May 16, 1926, eight tubes of meat medium were planted each with about 1 c c of blood. On May 17 the cultures were examined in smear with carbol fuchsin. In the smear from one of the cultures, "t," there appeared to be great numbers of isolated minute coccoid bodies. This culture was passed through a Berkefeld N filter. The filtrate was planted in two tubes of meat medium. On May 19 both tubes of meat medium planted with filtrate were turbid. One culture, "t_1," was covered with a wrinkled pellicle. A smear from this culture showed Gram-positive rods. The other culture, "t_2,"

was uniformly clouded. A smear from this culture showed both Gram-positive rods and Gram-positive diplococci. Cultures "t_1" and "t_2" were each streaked on a series of four vitamin agar slopes. On May 20 the vitamin agar slopes streaked with culture "t_1" showed spreading wrinkled growth typical of the rod form. There was no evidence of growth of the rod form on the series of slopes streaked with culture "t_2," but on all four slopes the growth was typical of the streptococcus. Smears from the first and last slopes of the series showed diplococci with very little pleomorphism. Two tubes of meat medium were planted from isolated colonies on the fourth slope of the series. On May 21 one of the tubes of meat medium planted on May 20 from an isolated colony was turbid. A smear showed only the Gram-positive rods. On May 22 the other tube of meat medium planted on May 20 from an isolated colony was turbid. A smear showed Gram-positive diplococci.

TRANSITION FROM ROD TO STREPTOCOCCUS

A few instances of the derivation of the streptococcus from the rod will be cited as typical of observations which have been made many times.

Repeated instances of the sudden conversion of the rod to the streptococcus with loss of virulence in the transition, as determined by intracerebral inoculation into rabbits, were observed in cultures obtained from the heart blood of case J. P. M. The particular point to be noted in the detailed account given below is that the rod form grew readily in meat medium and could be recovered always from the brains of rabbits which died following intracerebral inoculation, yet it reverted to the streptococcus form whenever an early generation culture was planted on agar, losing virulence in the transition. The observations were as follows:

July 24, 1926—Two tubes of meat medium were planted with heart blood. July 26—Both tubes of meat medium were turbid. Smears showed rods exclusively. Both cultures were transferred to vitamin agar slopes. July 27—A delicate film of minute colonies covered the slopes planted July 26. Smears from the two cultures appeared the same. Although the colonies on agar were typical of the streptococcus, there were no well-formed diplococci to be found in the smears, and very few definite rods were to be found. (See fig. 7.) The organisms were pleomorphic, resembling those seen in the human brain, as illustrated in Figure 1. (The magnification is greater in fig. 7.) It appeared as if the rods had broken down, leaving exposed the granules which had dotted their protoplasm previous to disintegration. Some of the granules were more or less enlarged, and the resulting coccoid bodies could be found occasionally in chains, but in no case had they attained the size of the typical diplo-streptococcus.

Rabbit 557 was inoculated intracerebrally with 0.25 c c of one of the original cultures planted with heart blood, which showed only the rod form in smears. Death occurred in four hours. The rabbit was placed in an ice box. July 28—The brain of rabbit 557 was removed and pieces were planted in two tubes

of meat medium and on a series of four agar slopes. July 29—The meat medium cultures planted with the brain of rabbit 557 were turbid, and smears showed typical Gram-positive rods and a few very small cocci, some of which were in short chains. The vitamin agar slopes showed typical streptococcus colonies apparently in pure culture. Transfers were made to meat medium from well isolated colonies on the fourth slope of the series. July 30—Meat medium planted on July 29 from an isolated colonly was turbid with streptococci in long chains. Rabbit 564 was inoculated with this streptococcus culture. No symptoms developed. August 2—A meat medium culture containing chiefly rods with very few streptococci, which had been planted on July 28 with the brain of rabbit 557, was streaked on a series of vitamin agar slopes. August 3—Although in smear the meat medium culture had shown an abundance of rods with only a few streptococci, the rods did not grow upon the agar, but streptococcus colonies appeared in apparently pure culture. Transfers to meat medium were made from well isolated colonies. August 4—A meat medium culture planted on August 3 from an isolated colony was turbid, and Gram-positive diplococci in chains, with considerable pleomorphism were found in smear. Rabbit 572 was inoculated intracerebrally with the culture. Slight symtoms developed, from which the rabbit made a complete recovery.

August 5—Rabbit 573 was inoculated intracerebrally with the original culture (rod form) planted with human heart blood. Five hours after inoculation the rabbit was found dead, and was placed in the ice box. August 6—Meat medium and a series of vitamin agar slopes were planted with pieces of brain of rabbit 573. August 7—The first tube of the series of vitamin agar slopes planted with brain on August 6 showed growth in a delicate film of exceedingly minute colonies. There was no growth on the remaining tubes of the series, although, judging from the infinite number of colonies on the first slope, the second must have been planted with an abundance of organisms. A smear from the film of growth in tube 1 showed very small cocci, many in chains, and also masses of amorphous material dotted with minute coccoid bodies similar to those in Figure 7. The meat medium planted with brain of rabbit 573 was clouded with growth of the rod form. A very few minute cocci were also found in the smear. This culture was streaked upon various kinds of agar to obtain, if possible, a growth of the rod on agar. Series of four tubes each of vitamin agar, glucose agar, and blood agar were planted. August 9—All agar slopes planted August 7 appeared to yield pure cultures of the streptococcus. On vitamin agar and on glucose agar growth was obviously suppressed on all but the first tube of the series; for although the first slope was covered with a delicate film of innumerable colonies, the second slope had only a few well-isolated colonies. On the other hand, there was no evidence of suppression of growth on blood agar, for the second slope, as well as the first, was covered with a delicate film of innumerable minute colonies. Smears were prepared with the growth on the first slope of each series.

The organisms were found to be in the transitional stage, as shown in Figures 8, 9, and 10. Figures 8 and 9 illustrate the morphology of the organisms on vitamin agar slope. In Figure 8 there appears a crooked chain of four or five swollen rods highly magnified. The rods are covered with coccoid buds of various sizes, and there is a single detached coccus in the photograph. An adjoining field, not so highly magnified, is shown in Figure 9, which illustrates the various stages from minute buds on the walls of the rod to well formed detached diplococci. Figure 10 illustrates the morphology of the organisms on the blood agar. Coccoid bodies as well as rods are swollen and dotted with deeply stained granules of varying sizes. August 11—Rabbit 592 was inoculated intracerebrally with the rod form in the meat medium culture planted with the brain of rabbit 573. It died within five hours, and cultivation of the brain gave the same results as

had been obtained previously with this strain, namely, growth of the rod in meat medium, but growth of the streptococcus on agar.

If Figures 8 and 9 are compared with Figure 6, it may be noted that rods covered with budding coccoid bodies appear in the transition on agar slope from rod to streptococcus (figs. 8 and 9) the same as in the changes of morphology which occur in monkey's brain inoculated with streptococci (fig. 6).

Although the strain of the rod form from the heart blood of case J. P. M. always lost virulence in its transition to the streptococcus, the transition from rod to streptococcus occurred without loss of virulence in the strain obtained from the medulla of this case. The observations were as follows:

July 24, 1926—Meat medium was planted with a small piece of medulla. July 26—The culture was turbid. A transfer was made to vitamin agar slope. July 27—Heavy, white opaque growth covered the agar slope planted July 26 and a stained smear showed the typical Gram-positive rods with spores, granules, and budding coccoid bodies. July 28—Rabbit 561 was inoculated intracerebrally with the meat-medium culture of the rod form derived from the medulla. It died 5½ hours later, and was placed in the ice box. July 29—The brain was removed, and pieces were planted in meat medium. July 30—The meat medium was clouded with gas production, and smears showed not only the Gram-positive rods but also Gram-negative rods. The latter, which were obviously an extraneous organism, predominated on the agar slopes. In order to obtain a pure culture of the spore-bearing rods a series of five vitamin agar slopes was streaked with a loopful of the mixed meat-medium culture. July 31—The extraneous organism predominated on all five of the agar slopes, but on the fourth slope of the series there was a well-isolated colony of the spore-bearing rods. Tubes of meat medium were inoculated from this colony. August 2—Rabbit 565 was inoculated intracerebrally with the purified rod culture planted July 31. It died seven hours later, and was placed in the ice box. August 3—Meat medium and a series of vitamin agar slopes were planted with pieces of brain. August 4—All cultures planted on August 3 showed in stained smears, pure growth of the spore-bearing rods. August 26—Rabbit 616 was inoculated intracerebrally with the rod culture in meat medium planted on August 3 with the brain of rabbit 565. It died 12 hours after inoculation, and a pure culture of the spore-bearing rods was obtained in all tubes of medium planted. August 27—The remainder of the culture used for inoculating the rabbit on August 26 was passed through a Berkefeld N filter. A tube of meat medium and a vitamin agar slope were planted with the filtrate, and rabbits 618 and 619 were inoculated with the filtrate to show whether or not it contained a soluble toxin to account for the rapidly fatal results obtained following intracerebral inoculation of culture. Neither rabbit developed symptoms. August 28—There were a considerable number of small colonies on the agar slope planted with filtrate. Gram-positive diplococci, some in long chains, were found in a smear. A meat medium culture was planted from the colonies. August 29—The meat-medium culture planted August 28 was turbid with Gram-positive diplococci, some of which were in chains. Rabbit 626 was inoculated with this culture. It died 18 hours later, and the streptococcus cultivated from the brain was inoculated into rabbit 635, which died 21 hours after inoculation.

Thus a virulent streptococcus was recovered from the filtrate of a culture of the spore-bearing rods. After the agar slope planted on

August 27 with filtrate of the rod culture had been incubated for three days, smears prepared from the minute streptococcus colonies were stained with carbol fuchsin and according to Giemsa's method. The organisms found were chiefly diplococci, many in long chains with great variation in the size of the cocci and in the density of staining. Many of the cocci were swollen and distorted, taking the stain faintly. There were a few rods to be found, and a very few long threads. In some of the chains both rods and cocci could be found. They are illustrated in Figure 11.

The appearance of diplococci in the brain of a rabbit inoculated with the rod form is illustrated in Figure 12. This photograph is from a smear of the brain of rabbit 142, which was inoculated intracerebrally with rod strain P105, obtained from the filtrate of an emulsion of pieces of the mesencephalon and medulla from case E. H. Rabbit 142 was the sixth through which this strain was passed. Previous to the inoculation the culture was streaked on a series of six vitamin agar slopes, all of which developed a spreading, wrinkled growth, with no other type of colonies. Rabbit 142 died 14 hours after inoculation, and a pure culture with all of the characteristics of the spore-bearing rods grew in meat medium and on vitamin agar slopes planted with the brain. Nevertheless, the morphology of the organism in the brain itself was not that of the spore-bearing rods, but of small pleomorphic organisms and diplococci. (See fig. 12.) Only one cluster of organisms was found, a part of which appears in the photograph. No bacteria were found on other parts of the slide, although a careful search was made. It is to be noted that the morphology of the bacteria in the brain of the rabbit inoculated with the rod culture was identical with that of the bacteria in the mid-brain from a human case of epidemic encephalitis, as shown in Figure 1. Bacteria of the same morphology as illustrated in Figure 12 were also found in the brains of rabbits inoculated with herpes virus. (See figs. 1 and 2 of the preceding paper (1927).) Moreover, the arrangement of bacteria was the same in the human brain, in the rabbit brains inoculated with virus, and in the rabbit brain inoculated with rod culture. In every case the bacteria were in compact masses difficult to find.

OCCURRENCE OF UNSTABLE, NONCULTIVABLE FORMS OF THE ORGANISM

Sometimes bacteria were seen in smears of spinal fluid taken during the acute stage of the disease. (See figs. 2, 3, and 4.) Cultures from these samples were obtained with great difficulty, however. The following experience in cultivating bacteria from the spinal fluid taken from case V. D. is typical. Although bacteria were seen in smears of all of three specimens of spinal fluid taken during the severe initial attack of the disease, a single culture was obtained from only one of the specimens. To secure this culture two tubes of meat

medium were each planted with 0.6 or 0.7 c c of spinal fluid. On the following day the broth in one of the tubes appeared to be turbid, but nothing definite could be made out in smears. Two days later smears of the culture were prepared again, and when stained with carbol fuchsin great numbers of single coccoid bodies could be found, some of which were exceedingly minute. Subcultures were made before and after filtration through a Berkefeld N filter. The meat medium planted with culture before filtration gave feeble growth of a mixture of diplococci and rods. In meat medium planted with the filtrate, however, a culture of the rods was obtained which grew readily in subculture.

It often happens that meat medium planted with blood or spinal fluid from an acute case of epidemic encephalitis becomes turbid, but very few or no bacteria can be found in stained smears. If the culture is examined in hanging drop, however, coccoid bodies of varying sizes, usually single, may be readily seen. It commonly happens that no growth can be obtained in heavily planted subcultures, and the turbidity of the original culture clears up. Sometimes after clearing up there is a sudden profuse development of the rod or diplococcus form as late as the eighth or ninth day or even later. The clearing of turbid cultures resembles bacteriophagic behavior. Many unsuccessful attempts were made, however, to transfer the suspected bacteriophagic action to cultures of the rod or streptococcus form.

EXPLANATION OF FIGURES

Figure 1. Smear of mesencephalon from human case (C. D.) stained by Giemsa's method. × 1,200 (approx.).

Figures 2, 3, and 4. Organisms in spinal fluid from case V. D. stained with carbol-fuchsin. Figure 2, × 1,200 (approx.); Figures 3 and 4, × 1,800 (approx.).

Figure 5. The spore-bearing rods stained with Gram-safranin. × 1,200 (approx.)

Figure 6. Transitional stage in a smear of the brain of monkey 39, inoculated with the streptococcus form. Stained with Gram-safranin. × 2,000 (approx.).

Figure 7. Transitional stage in a smear from a vitamin agar culture, the second culture generation from human heart blood. Stained with Gram-safranin. × 2,000 (approx.).

Figures, 8, 9, and 10. Transitional stages in smears from agar cultures of a strain recently cultivated from human heart blood. Stained with Gram-safranin. Figures 8 and 9, from vitamin agar. Figure 10, from blood agar. Figure 8, × 2,300 (approx.); Figure 9, × 1,400 (approx.).

Figure 11. Rods in the chains of streptococci from a vitamin agar culture planted with filtrate of a culture of the rod form. Stained by Giemsa's method. × 1,700 (approx.).

Figure 12. Diplococci and pleomorphic forms in the brain of a rabbit inoculated with the spore-bearing rods. Stained with Gram-safranin. × 1,700 (approx.).

Figure 13. Streptococci in the chains with rods containing spores. Stained with Gram-safranin. × 1,200 (approx.).

Figure 14. Rods in freely growing cultures of streptococci. Stained with Gram-safranin.

Figure 15. Rods encasing short double chains of minute coccoid bodies. Stained with Gram-safranin, × 3,000 (approx.).

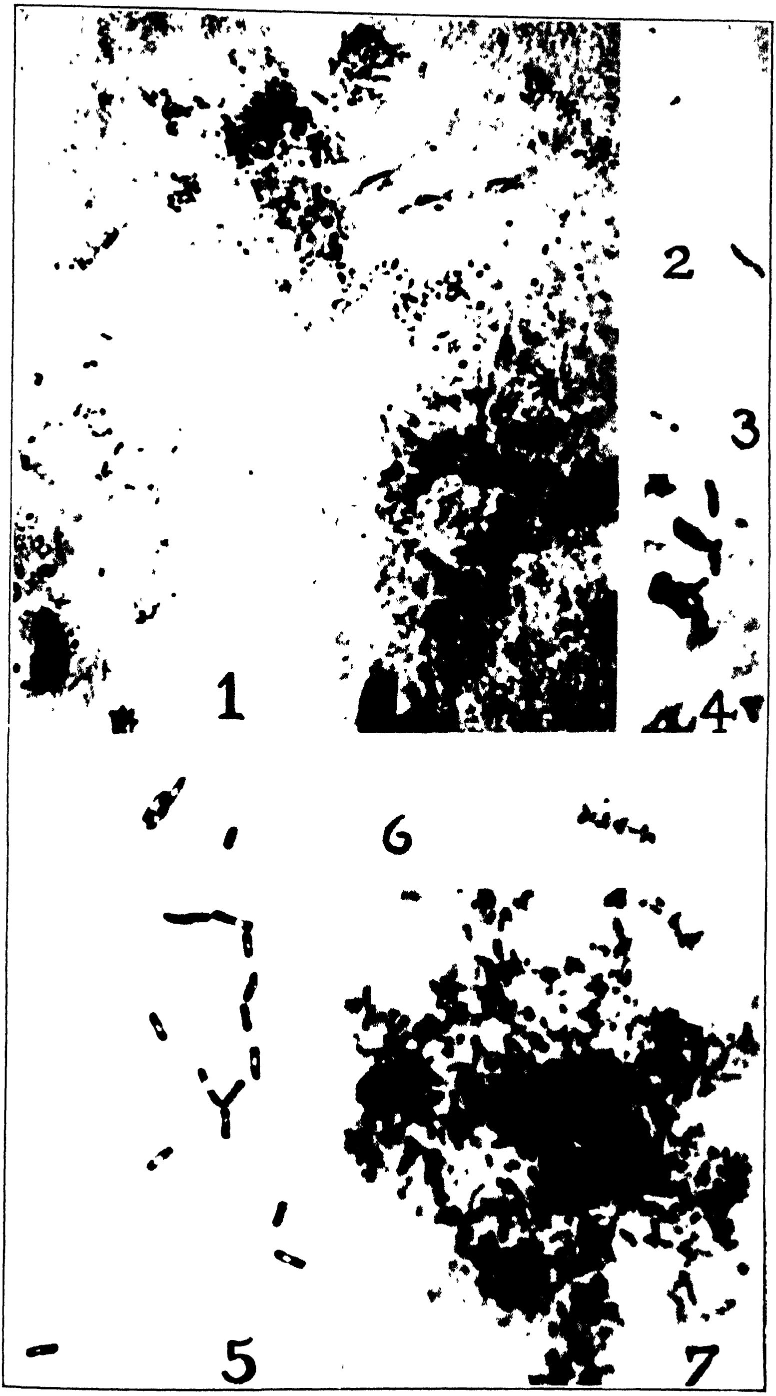
Figure 16. Rods encasing short double chains of minute coccoid bodies, and gonidia developing on the walls. Stained with Gram-safranin. × 1,800 (approx.).

Figure 17. Gonidia on the walls of rods. Stained with Gram-safranin. × 1,000 (approx.).

Figure 18. Minute gonidia, some stained, some unstained, on the walls of rods, or detached. Stained with Gram-safranin.

Figure 19. Coccoid bodies, varying in size from minute to giant, on the walls of rods. Stained with carbol-fuchsin. × 900 (approx.).

Figure 20. Gonidia on the walls of rods containing spores. Stained with Gram-safranin. × 1,300 (approx.).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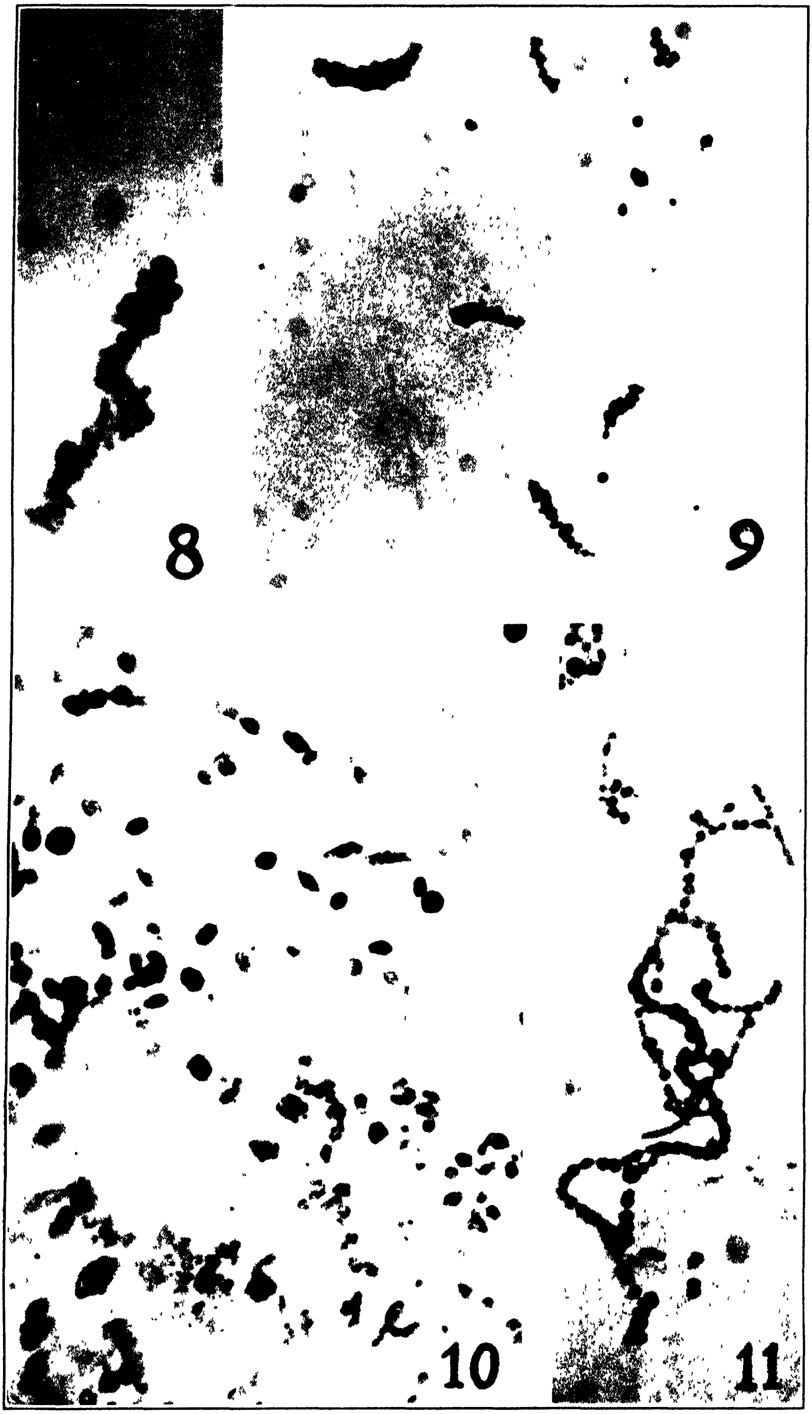
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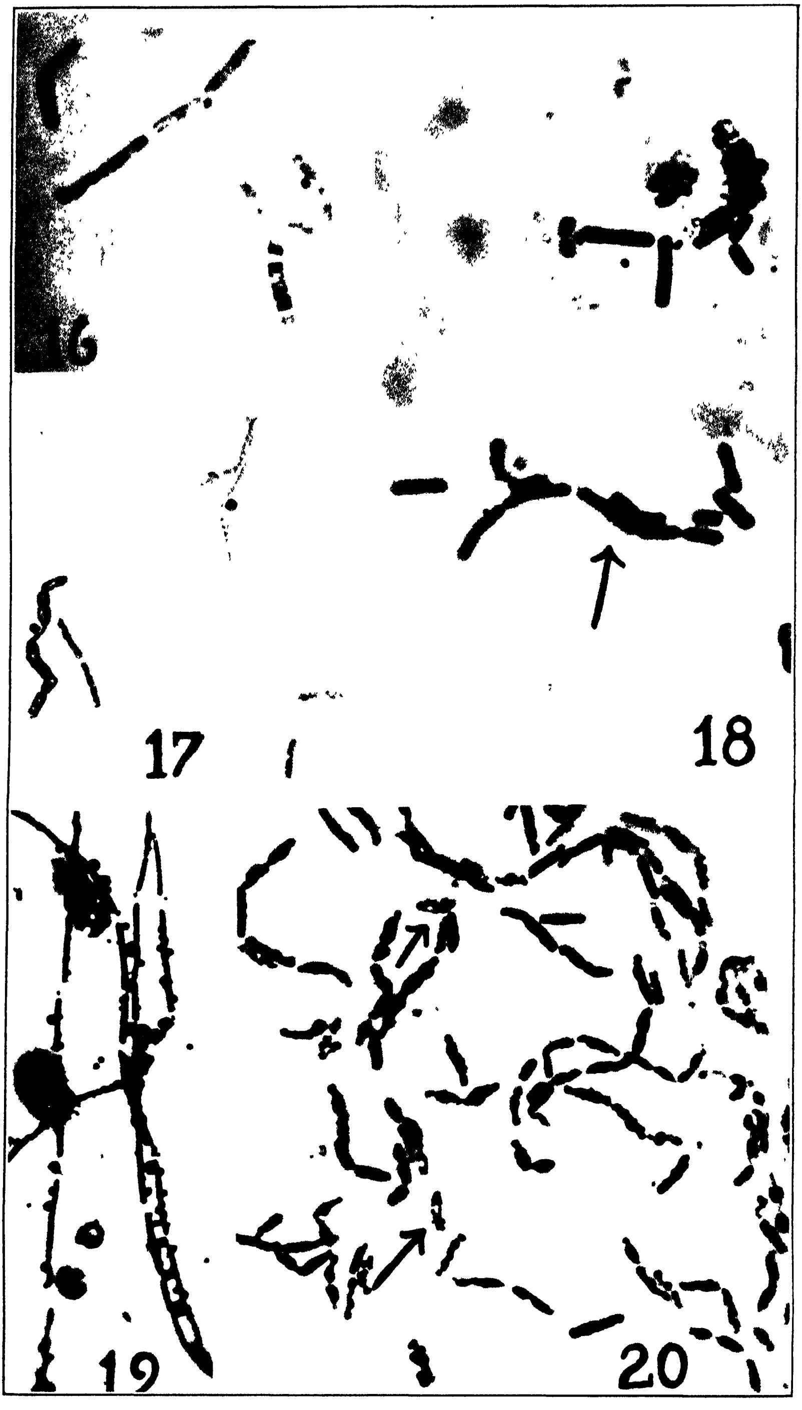
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In culturing the brains of rabbits which have died following intra-cerebral inoculation of the rod form, it is readily recovered if death occurs within a few days. If, however, death is delayed until a week or more after inoculation, the same difficulty in recovering the inoculated organism may be experienced as is described above for its cultivation from human blood and spinal fluid. Residence of the bacterial form in the animal body brings about metamorphosis into a difficultly cultivable phase.

OCCURRENCE OF THE COMPLEMENTARY FORMS IN FREELY GROWING CULTURES

Although it appears to require a sojourn of at least several days in living animal tissue, or some adverse condition of laboratory cultivation to produce one of the described forms of the organism from the other, an occasional cell which has assumed the complementary form may frequently be observed in smears from freely growing cultures of either form. These occasional cells of the complementary form seem to be unable to establish progeny of their own kind until some circumstance checks the multiplication of the other type of cells.

In Figure 13 there are illustrated streptococci and spore-bearing rods in the same chains. The photograph is of a smear of a 24-hour culture of the rod form on vitamin agar slope, the second culture generation after animal passage. Growth was abundant and spreading, typical of the rod form.

The development of coccoid bodies on the walls of spore-bearing rods is not a rare occurrence in cultures which have been maintained on culture medium for a long time. Indeed, they were observed in a culture of *B. subtilis* (strain No. 243), obtained from the American type culture collection through the courtesy of the curator, Dr. George H. Weaver, 637 South Wood Street, Chicago, Ill. The coccoid bodies were noted to be quite common in an agar slope culture of this strain which had been growing for eight days at room temperature. Some of the coccoid bodies seen in the smear from this culture were exceedingly minute.

Occasional rods may be induced readily in cultures of the streptococcus form by incubating a plain broth culture for several days, then transplanting it to agar slope. The rods will appear in smears prepared from the agar slope. They disappear, however, in subcultures. Well-formed rods, which were induced in streptococcus P123 in the manner just described (the culture in plain broth had been incubated for two weeks), are illustrated in Figure 14.

THE PROCESS OF TRANSFORMATION

The transformation from streptococcus to rod appears to take place simply by the elongation of cells. (See figs. 11 and 14.)

There appear to be at least two ways by which cocci may be derived from rods. The rods may swell and at the same time develop granules which stain deeply. The rods then disintegrate, freeing the granules, which enlarge and multiply as cocci. This process is illustrated in Figures 7, 8, 9, and 10. Occasionally rods may be found in which the granules are so arranged that they appear like a pair of short chains of minute diplococci encased by the rod, as in Figures 15 and 16.

Cocci also may be derived from rods without disintegration by the development of coccoid bodies on the walls. The coccoid bodies are called gonidia by Lohnis and Smith, and by other investigators. (See figs. 8, 9, 16, 17, 18, 19, and 20.) The gonidia may become detached when very minute and increase to the size of an ordinary coccus independent of the rod. Several minute detached gonidia may be seen in Figures 18 and 19. Sometimes the deeply stained gonidia may be found on the walls of rods which have also developed the unstainable, heat-resistant spores. (See fig. 20.) Figures 6, 8, and 9 show that the gonidia may develop in great profusion on the walls of the rods, sometimes almost concealing them.

THE FILTERABLE PHASE

Lohnis and Smith observed the formation of gonidia by *B. subtilis*. They noted that some of the gonidia did not take the stain, and there were always some just at the limit of visibility. They were able to obtain growths of bacteria from the filtrates of cultures containing gonidia.

In a paper by Churchman on the structure of *Bacillus anthracis*, there are illustrations of coccoid Gram-positive bodies on the walls of Gram-negative rods. The general appearance of *B. anthracis* in Churchman's illustrations resembles very closely the appearance of the spore-bearing rod with gonidia on the walls of the rods as illustrated in Figure 20. Churchman believes that the rods of *B. anthracis* consist of a Gram-negative medulla surrounded by a Gram-positive cortex which is readily soluble, and that a partial dissolution of the cortex results in a mottled appearance of the cells. He demonstrated a proteinlike substance in the filtrate of cultures in which the cortex had been dissolved.

Certain observations enumerated below suggest that the smallest of the gonidia may constitute the filterable phase of the organism described in this paper:

(1) Coccoid bodies of all sizes may be found in stained smears from certain cultures. The sizes may vary from that of a giant coccus to minute bodies so small that they are barely visible. Inasmuch as every gradation between these two extremes exists (see fig. 19), there is no reason to assume that the limit of visibility is the lowest limit of size of the gonidia. There may be gonidia smaller than the smallest that can be seen in the stained smears.

(2) There is no more satisfactory method for obtaining a pure culture of diplococcus from the rod than to plant the filtrate of one of the early generation meat medium cultures of the rod form showing an abundance of budding gonidia.

(3) The location of minute unstained gonidia along the walls of rods may be seen in Figure 18, particularly on the rod pointed out by the arrow. In this smear some of the gonidia were stained, others failed to take the stain.

(4) Subcultures are just as readily obtained by planting the filtrates as by planting the unfiltered, turbid suspensions of cultures derived from blood or spinal fluid when those cultures contain only the unstainable coccoid bodies visible in hanging drop.

(5) After the rods have remained in the brains of experimental animals for a couple of weeks or more, they may be readily recovered by planting an emulsion of the brain in meat medium; and cultures of streptococci may be recovered sometimes from the Berkefeld N filtrates of the emulsion by planting the filtrate in meat medium.

DISCUSSION

The observations described in this paper are discordant with the monomorphic theory, now discarded by most bacteriologists, but they are in agreement with the laws of general biology. As pointed out by the writer in an earlier paper (1929), from the point of view of general biology, complex life cycles with metamorphoses accompanied by changes in habitat and biologic behavior should be expected in bacteria, rather than monomorphism.

Life cycles are a law of nature; and with the descent in the scale of life, the cycles become more and more complex, and metamorphoses, with the concomitant changes in habitat and in biologic behavior, become more and more pronounced. Algæ, fungi, and protozoa—the plant and animal groups standing next higher than the bacteria—exhibit marvelous life cycles. It is unreasonable to think that a law of nature which becomes more and more complex with the descent in the scale of life would be suspended in its lowest known form.

SUMMARY

A streptococcus, a filterable form, and an aerobic spore-bearing rod are phases in the life cycle of an organism cultivated from cases of epidemic encephalitis and from the so-called herpetic and encephalitic viruses.

The details of the transition from one form to the other are described in a few instances which exemplify metamorphoses that have been observed many times.

ACKNOWLEDGMENTS

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DEATHS DURING WEEK ENDED JULY 30, 1932

Summary of information received by telegraph from industrial insurance companies for the week ended July 30, 1932, and corresponding week of 1931. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)

	Week ended July 30, 1932	Corresponding week 1931
Policies in force	71, 641, 157	75, 015, 314
Number of death claims	13, 014	12, 678
Death claims per 1,000 policies in force, annual rate	9. 5	8. 8
Death claims per 1,000 policies, first 30 weeks of year, annual rate	10. 0	10. 3

Deaths [1] from all causes in certain large cities of the United States during the week ended July 30, 1932, infant mortality, annual death rate, and comparison with corresponding week of 1931. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)

[The rates furnished in this summary are based upon midyear population estimates derived from the 1930 census]

City	Week ended July 30, 1932				Corresponding week, 1931		Death rate [2] for the first 30 weeks	
	Total deaths	Death rate [2]	Deaths under 1 year	Infant mortality rate [3]	Death rate [2]	Deaths under 1 year	1932	1931
Total (85 cities)	6, 632	9. 5	521	[4] 44	10. 7	622	11. 7	12. 6
Akron	31	6. 1	3	37	7. 7	8	7. 6	8. 0
Albany [5]	29	11. 6	2	41	14. 9	4	14. 1	14. 5
Atlanta [6]	57	10. 5	4	39	11. 6	6	13. 6	15. 7
White	32	8. 9	3	44	8. 8	3	10 7	12 3
Colored	25	13. 7	1	29	17. 3	3	19 2	22. 3
Baltimore [5] [6]	148	9. 4	11	39	14. 1	21	13. 6	15. 2
White	111	8. 7	8	36	13. 4	16	12 6	13. 9
Colored	37	12. 9	3	48	17. 4	5	18. 1	21. 0
Birmingham [6]	60	11. 3	4	42	11 6	6	11. 5	14. 3
White	25	7. 6	2	33	8. 4	6	8. 9	11. 0
Colored	35	17. 4	2	54	16 8	0	15. 8	19. 5
Boston	146	9 7	8	24	12. 7	19	14. 6	14. 7
Bridgeport	24	8 5	2	36	9. 9	4	11. 0	11. 7
Buffalo	105	9. 3	12	58	11. 6	17	12. 9	13 8
Cambridge	21	9 6	1	21	10. 1	0	13. 0	12. 6
Camden	30	13 2	5	88	13. 1	4	14. 9	14. 7
Canton	16	7 7	1	25	11. 7	3	9. 7	10. 7
Chicago [5]	556	8. 3	37	37	10 1	55	10. 2	11. 4
Cincinnati	133	15 0	11	71	14. 7	16	15 5	16. 7
Cleveland	187	10. 6	8	26	9. 3	20	11. 3	11. 7
Columbus	76	13 3	9	90	12 3	3	14. 0	14. 4
Dallas [6]	62	11. 5	7	-------	9. 4	6	10. 9	11. 9
White	40	8. 9	7	-------	7. 9	3	10. 0	10. 5
Colored	22	23. 6	0	-------	16. 5	3	15. 4	18. 4
Dayton	46	11. 6	5	72	10. 7	4	12. 2	12. 7
Denver	56	9. 9	6	59	11. 6	3	14. 6	14. 5
Des Moines	29	10. 4	3	51	12. 6	2	11. 6	11. 8
Detroit	192	5. 8	18	32	7. 2	19	8. 0	8. 8
Duluth	16	8. 2	2	58	12. 3	2	10. 8	11. 0
El Paso	19	9. 3	3	-------	15. 4	4	13. 9	16. 5
Erie	17	7. 5	3	64	8. 9	3	11. 7	10. 8
Evansville	13	6. 4	0	0	12 5	3	10. 3	11. 9
Fall River [5] [7]	17	7. 7	1	27	9. 5	1	12. 2	12. 0
Flint	16	4. 9	3	44	4. 1	0	7. 8	7. 5
Fort Wayne	16	6. 9	3	77	11. 4	0	10. 4	11. 2
Fort Worth [6]	32	9. 8	4	-------	10. 3	0	10. 4	11. 3
White	24	8. 7	2	-------	10. 4	0	9. 8	10. 9
Colored	8	15. 7	2	-------	9. 6	0	13. 4	13. 6
Grand Rapids	22	6. 6	1	17	6. 7	4	9. 0	9. 5
Hartford	49	15. 1	5	66	-------	-------	-------	-------

See footnotes at end of table.

Deaths from all causes incerla in large cities of the United States during the week ended July 30, 1932, infant mortality, annual death rate, and comparison with corresponding week of 1931. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended July 30, 1932				Corresponding week, 1931		Death rate for the first 30 weeks	
	Total deaths	Death rate	Deaths under 1 year	Infant-mortality rate	Death rate	Deaths under 1 year	1932	1931
Houston [6]	60	9.7	3		9.8	7	11.1	11.5
White	35	7.7	2		8.0	6	10.2	10.6
Colored	25	15.2	1		14.4	1	13.5	13.8
Indianapolis [6]	89	12.4	7	57	12.0	4	12.9	14.3
White	76	12.1	6	55	12.7	4	12.5	13.9
Colored	13	14.7	1	69	6.9	0	15.8	17.3
Jersey City	58	9.5	7	58	10.6	9	11.5	12.3
Kansas City, Kans. [6]	32	13.5	6	133	13.6	8	12.5	13.6
White	27	14.1	4	107	13.6	8	12.1	12.6
Colored	5	11.0	2	256	13.3	0	14.0	17.8
Kansas City, Mo	81	10.2	4	45	12.0	11	12.4	14.0
Knoxville [6]	15	7.0	0	0	10.0	2	12.0	13.1
White	12	6.7	0	0	9.1	2	11.1	12.0
Colored	3	8.6	0	0	14.6	0	17.0	18.7
Long Beach	24	7.8	3	79	9.6	1	9.1	10.0
Los Angles	245	9.3	19	56	9.7	17	10.7	11.0
Louisville [6]	65	11.0	9	82	9.5	9	13.6	15.0
White	54	10.8	8	83	8.0	5	12.4	13.4
Colored	11	12.0	1	75	17.5	4	20.4	23.5
Lowell [7]	20	10.4	1	26	10.4	5	14.0	13.1
Lynn	12	6.1	0	0	8.1	1	10.9	10.4
Memphis [6]	106	21.0	5	54	13.7	7	17.0	16.8
White	53	17.0	2	34	12.7	3	13.3	13.9
Colored	53	27.5	3	90	15.3	4	22.8	21.5
Miami [6]	20	9.6	1	28	9.7	2	12.1	12.3
White	13	8.0	1	39	9.6	2	10.9	11.1
Colored	7	15.1	0	0	10.3	0	16.1	16.1
Milwaukee	83	7.2	3	14	5.5	7	9.0	9.9
Minneapolis	86	9.3	6	39	11.0	5	10.7	12.0
Nashville [6]	48	16.0	10	149	17.4	7	15.6	17.4
White	24	11.0	8	157	15.7	5	14.0	14.9
Colored	24	29.3	2	125	21.9	2	19.7	23.8
New Bedford [7]	34	15.8	3	86	13.0	3	11.9	13.1
New Haven	32	10.3	2	40	16.7	4	12.4	12.7
New Orleans [6]	135	14.9	14	80	13.6	11	16.0	17.4
White	83	12.9	5	44	10.5	8	13.6	14.1
Colored	52	19.8	9	147	21.3	3	21 9	25.6
New York	1,175	8.5	80	36	10.2	107	11.0	11.9
Bronx Borough	168	6.4	11	32	7.4	6	8.1	8.7
Brooklyn Borough	395	7.7	38	42	9.0	35	10.2	10.9
Manhattan Borough	438	12.9	26	37	15.4	49	16.8	18.0
Queens Borough	129	5.6	4	17	7.2	13	7.1	7.7
Richmond Borough	45	14.0	1	20	15.0	4	14.2	14.2
Newark, N. J	71	8.3	4	22	10.6	6	10.9	12.3
Oakland	51	8.9	1	13	7.3	1	10.5	10.6
Oklahoma City	48	12.2	6	82	9.8	5	10.4	11.6
Omaha	47	11.2	3	34	13.2	2	13.1	14.2
Paterson	28	10.5	5	91	12.0	3	13.1	14.2
Peoria	17	8.0	3	83	9.1	1	11.2	13.2
Philadelphia	325	8.6	23	36	10.3	28	12.9	14.0
Pittsburgh	102	7.8	12	55	13.9	20	13.0	15.5
Portland, Oreg	59	9.9	3	38	10.9	4	11.2	12.0
Providence	49	10.0	2	19	13.3	6	13.6	13.5
Richmond [6]	56	15.8	5	75	15.3	6	14.2	16.4
White	35	13.8	3	67	11.5	3	11.7	14.0
Colored	21	20.8	2	92	24.6	3	20.4	22.4
Rochester	57	8.9	4	38	8.2	6	12.4	12.4
St. Louis	224	14.1	15	54	11.3	10	13.9	16.3
St. Paul	42	7.9	3	32	8.7	2	10.3	11.3
Salt Lake City [6]	27	9.7	5	79	16.0	2	11.0	12.4
San Antonio	67	14.2	5		11.9	7	14.1	15.4
San Diego	43	13.8	3	65	12.3	3	14.2	14.1
San Francisco	188	10.9	5	35	12.4	13	12.5	13.2
Schenectady	25	13.5	3	87	9.8	0	10.6	10.8
Seattle	58	8.1	3	30	9.3	0	11.7	11.7
Somerville	20	9.8	4	161	4.5	0	9.5	9.6
South Bend	9	4.2	1	20	3.9	0	7.7	8.5

See footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended July 30, 1932, infant mortality, annual death rate, and comparison with corresponding week of 1931. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended July 30, 1932				Corresponding week, 1931		Death rate for the first 30 weeks	
	Total deaths	Death rate	Deaths under year	Infant-mortality rate	Death rate	Deaths under 1 year	1932	1931
Spokane	15	6.7	2	53	13.9	0	12.1	12.6
Springfield, Mass	29	9.8	3	51	11.6	2	11.6	12.4
Syracuse	40	9.7	2	26	11.5	4	11.9	12.1
Tacoma	28	13.5	0	0	11.1	1	12.4	12.5
Tampa [6]	21	10.2	1	29	11.9	1	11.8	12.6
White	16	9.8	1	35	10.7	0	11.1	11.6
Colored	5	11.5	0	0	16.4	1	14.3	16.1
Toledo	63	10.9	5	54	9.8	4	12.1	12.4
Trenton	25	10.5	3	59	14.3	4	16.1	17.2
Utica	22	11.2	1	28	17.3	1	15.7	14.7
Washington, D. C.[6]	126	13.3	16	90	15.9	14	16.8	16.5
White	93	13.6	11	90	12.6	4	15.0	14.1
Colored	33	12.6	5	89	24.7	10	21.6	22.8
Waterbury	8	4.1	0	0	6.7	0	9.4	9.9
Wilmington, Del.[7]	26	12.8	4	90	9.3	3	15.6	14.6
Worcester	33	8.7	2	28	11.1	2	12.6	12.9
Yonkers	20	7.4	4	103	7.9	1	7.9	9.0
Youngstown	21	6.3	0	0	8.1	1	9.8	10.9

[1] Deaths of nonresidents are included. Stillbirths are excluded.
[2] These rates represent annual rates per 1,000 population, as estimated for 1932 and 1931 by the arithmetical method.
[3] Deaths under 1 year of age per 1,000 estimated live births. Cities left blank are not in the registration area for births.
[4] Data for 81 cities.
[5] Deaths for week ended Friday.
[6] For the cities for which deaths are shown by color the percentages of colored population in 1930 were as follows: Atlanta, 33; Baltimore, 18; Birmingham, 38; Dallas, 17; Fort Worth, 16, Houston, 27; Indianapolis, 12; Kansas City, Kans., 19; Knoxville, 16; Louisville, 15, Memphis, 38; Miami, 23; Nashville, 28; New Orleans, 29, Richmond, 29; Tampa, 21; and Washington, D. C., 27.
[7] Population Apr. 1, 1930; decreased 1920 to 1930, no estimate made.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended August 6, 1932, and August 8, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended August 6, 1932, and August 8, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Aug. 6, 1932	Week ended Aug. 8, 1931	Week ended Aug. 6, 1932	Week ended Aug. 8, 1931	Week ended Aug. 6, 1932	Week ended Aug. 8, 1931	Week ended Aug. 6, 1932	Week ended Aug. 8, 1931
New England States:								
Maine	2	1	------	------	4	3	0	0
New Hampshire	------	------	------	------	2	1	0	0
Vermont	------	------	------	------	19	4	0	0
Massachusetts	37	81	------	1	88	53	0	1
Rhode Island	1	5	------	------	8	35	0	0
Connecticut	4	2	------	2	26	34	1	2
Middle Atlantic States:								
New York	49	58	[1] 8	[1] 1	311	378	2	12
New Jersey	18	12	8	2	94	48	2	3
Pennsylvania	34	38	------	------	194	154	7	7
East North Central States:								
Ohio	24	14	4	1	67	37	0	4
Indiana	23	8	7	------	12	16	5	3
Illinois	31	48	4	------	24	76	2	4
Michigan	7	11	------	------	214	21	1	3
Wisconsin	38	4	8	7	45	86	3	2
West North Central States:								
Minnesota	2	3	------	2	5	5	1	3
Iowa	11	3	------	------	4	1	1	0
Missouri	4	12	1	------	6	1	1	1
North Dakota	4	3	------	------	16	5	0	0
South Dakota	3	3	------	------	------	1	0	0
Nebraska	2	1	------	------	4	1	3	1
Kansas	6	6	------	1	17	10	0	0
South Atlantic States:								
Delaware	------	1	------	------	------	1	1	0
Maryland [2,3]	6	10	4	------	7	21	1	0
District of Columbia	1	5	------	------	------	4	0	0
Virginia [3]	36	------	------	------	22	------	1	------
West Virginia	8	6	------	12	34	46	0	0
North Carolina [3]	21	27	28	1	26	38	1	1
South Carolina [3]	7	18	49	70	16	6	0	1
Georgia [3]	18	5	11	6	3	3	1	0
Florida	11	8	2	------	2	4	0	0
East South Central States:								
Kentucky	------	------	------	------	------	12	5	1
Tennessee	6	7	13	1	------	9	0	2
Alabama [3]	14	13	6	------	------	22	1	9
Mississippi	19	11	------	------	------	------	0	0
West South Central States:								
Arkansas	2	8	------	------	1	2	0	0
Louisiana	15	13	------	9	3	------	0	0
Oklahoma [4]	30	11	3	12	8	------	0	0
Texas [3]	46	27	16	7	13	1	1	0

[1] New York City only.
[2] Week ended Friday.
[3] Typhus fever, week ended Aug. 6, 1932, 41 cases; 5 cases in Maryland, 1 case in North Carolina, 11 cases in Texas, 10 cases in Alabama, 10 cases in Georgia, 2 cases in South Carolina, and 2 cases in Virginia.
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa, and for 1931 are exclusive of Tulsa only.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended August 6, 1932, and August 8, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Aug. 6, 1932	Week ended Aug. 8, 1931	Week ended Aug. 6, 1932	Week ended Aug. 8, 1931	Week ended Aug. 6, 1932	Week ended Aug. 8, 1931	Week ended Aug. 6, 1932	Week ended Aug. 8, 1931
Mountain States:								
Montana	1				32	8	1	0
Idaho	2						0	1
Wyoming					3	5	0	0
Colorado	7	6			7	3	0	0
New Mexico	8	5			2		0	0
Arizona	2	2			1	1	0	0
Utah [2]			1		2	5	0	0
Pacific States:								
Washington	3	3	2		14	6	1	2
Oregon	2	2	11	1	13	11	0	0
California	40	30	119	14	35	60	1	9
Total	600	476	295	150	1,394	1,238	44	72

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Aug. 6, 1932	Week ended Aug. 8, 1931	Week ended Aug. 6, 1932	Week ended Aug. 8, 1931	Week ended Aug. 6, 1932	Week ended Aug. 8, 1931	Week ended Aug. 6, 1932	Week ended Aug. 8, 1931
New England States:								
Maine	1	7	3	8	0	1	2	3
New Hampshire	1	0	3	2	0	0	1	1
Vermont	0	0	4	2	0	4	0	0
Massachusetts	2	67	60	67	0	0	6	8
Rhode Island	2	16	6	5	0	0	1	3
Connecticut	0	97	9	7	0	0	2	2
Middle Atlantic States:								
New York	12	676	157	118	2	2	54	34
New Jersey	7	55	44	26	0	0	9	7
Pennsylvania	17	1	99	85	0	0	34	49
East North Central States:								
Ohio	2	5	64	38	4	5	44	25
Indiana	0	1	32	21	1	17	20	13
Illinois	10	15	48	63	1	3	44	31
Michigan	7	17	78	70	0	5	17	10
Wisconsin	1	10	8	18	1	1	6	4
West North Central States:								
Minnesota	6	13	13	12	1	4	3	2
Iowa	2	3	6	8	8	10	17	4
Missouri	1	7	28	14	1	4	28	18
North Dakota	2	1	1	3	4	3	3	1
South Dakota	0	0	4	6	0	0	0	3
Nebraska	0	0	9	4	0	2	2	3
Kansas	3	0	18	10	0	14	9	13
South Atlantic States:								
Delaware	0	1	2	2	0	0	1	2
Maryland [2] [3]	3	1	25	7	0	0	41	4
District of Columbia	0	1	2	5	0	0	0	0
Virginia [3]	2		11		0		52	
West Virginia	0	1	4	11	0	0	45	35
North Carolina [2]	0	5	15	34	0	1	45	8
South Carolina [2]	5	0	4	1	0	0	50	112
Georgia [2]	2	3	4	11	0	1	87	59
Florida	0	0	3	0	1	1	9	3
East South Central States:								
Kentucky	1	2	17	13	0	0	127	45
Tennessee	0	2	7	10	0	3	111	127
Alabama [2]	8	0	8	23	0	1	33	68
Mississippi	0	0	7	12	0	9	31	57
West South Central States:								
Arkansas	0	0	5	2	1	4	13	40
Louisiana	2	0	5	10	1	3	27	71
Oklahoma [4]	0	1	4	7	7	7	66	45
Texas [2]	2	4	17	19	1	5	43	29

[2] Week ended Friday.
[3] Typhus fever, week ended Aug. 6, 1932, 41 cases; 5 cases in Maryland, 1 case in North Carolina, 11 cases in Texas, 10 cases in Alabama, 10 cases in Georgia, 2 cases in South Carolina, and 2 cases in Virginia.
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa, and for 1931 are exclusive of Tulsa only.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended August 6, 1932, and August 8, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Aug. 6, 1932	Week ended Aug. 8, 1931	Week ended Aug. 6, 1932	Week ended Aug. 8, 1931	Week ended Aug. 6, 1932	Week ended Aug. 8, 1931	Week ended Aug. 6, 1932	Week ended Aug. 8, 1931
Mountain States:								
Montana	0	2	8	4	4	2	2	5
Idaho	0	0	1	6	5	0	3	0
Wyoming	0	0	1	1	0	0	0	0
Colorado	0	0	6	6	2	0	10	10
New Mexico	0	1	0	2	0	0	6	4
Arizona	0	1	0	0	0	1	0	2
Utah [1]	0	0	2	1	0	0	0	0
Pacific States:								
Washington	0	4	8	9	6	17	4	6
Oregon	1	0	11	1	2	14	3	8
California	4	9	35	28	8	15	9	25
Total	101	1,029	906	812	56	159	1,119	999

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week:

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
June, 1932										
Florida		35	10	36	40	8	0	9	5	16
Illinois	19	202	86	11	3,123	1	10	989	33	67
July, 1932										
Connecticut	2	9	15		319		3	81	0	7
District of Columbia		35	3		16	1	0	19	0	13
Florida		33	1	36	4	5	0	8	1	19
Iowa	1	46		1	17		4	34	23	16
Massachusetts	2	141	4	5	1,393	3	7	602	0	20
Nebraska	1	17	5		12		2	20	8	4

June, 1932

	Cases
Chicken pox:	
Florida	14
Illinois	1,167
Dysentery:	
Florida	2
Illinois (amebic)	4
Illinois (bacillary)	6
German measles:	
Illinois	33
Lead poisoning:	
Illinois	3
Lethargic encephalitis:	
Illinois	7
Mumps:	
Florida	14
Illinois	203
Ophthalmia neonatorum:	
Illinois	4
Paratyphoid fever:	
Illinois	1
Puerperal septicemia:	
Illinois	7
Septic sore throat:	
Illinois	5
Trachoma:	
Illinois	7
Typhus fever:	
Florida	8
Undulant fever:	
Illinois	6
Whooping cough:	
Florida	72
Illinois	1,219

July, 1932

	Cases
Chicken pox:	
Connecticut	176
District of Columbia	26
Florida	4
Iowa	24
Massachusetts	441
Nebraska	10

	Cases
Conjunctivitis:	
Connecticut	1
Dysentery:	
Massachusetts	1
German measles:	
Connecticut	8
Iowa	1
Massachusetts	23
Impetigo contagiosa:	
Iowa	1
Lead poisoning:	
Massachusetts	2
Lethargic encephalitis:	
District of Columbia	1
Florida	1
Massachusetts	5
Mumps:	
Connecticut	80
Florida	13
Iowa	23
Massachusetts	341
Nebraska	14
Ophthalmia neonatorum:	
Massachusetts	35
Paratyphoid fever:	
Connecticut	1
Massachusetts	2
Rabies in animals:	
Connecticut	5
Rabies in man:	
Connecticut	1
Iowa	1
Rocky Mountain spotted or tick fever:	
District of Columbia	2
Septic sore throat:	
Connecticut	4
Iowa	1
Massachusetts	20
Tetanus:	
Connecticut	1
Massachusetts	5
Trachoma:	
Massachusetts	4
Trichinosis:	
Massachusetts	1
Typhus fever:	
Florida	6
Undulant fever:	
Connecticut	2
Iowa	8
Massachusetts	1
Vincent's angina:	
Iowa	1
Whooping cough:	
Connecticut	433
District of Columbia	30
Florida	31
Iowa	44
Massachusetts	582
Nebraska	76

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 97 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 33,980,000. The estimated population of the 90 cities reporting deaths is more than 32,420,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended July 30, 1932, and August 1, 1931

	1932	1931	Estimated expectancy
Cases reported			
Diphtheria:			
46 States	482	483	
97 cities	163	227	388
Measles:			
45 States	1,958	1,898	
97 cities	546	597	
Meningococcus meningitis:			
46 States	37	60	
97 cities	19	32	
Poliomyelitis:			
46 States	81	598	
Scarlet fever:			
46 States	1,001	875	
97 cities	336	299	296
Smallpox:			
46 States	94	186	
97 cities	11	15	20
Typhoid fever:			
46 States	1,124	908	
97 cities	131	172	109
Deaths reported			
Influenza and pneumonia:			
90 cities	306	313	
Smallpox:			
90 cities	0	0	

City reports for week ended July 30, 1932

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded, and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible but no year earlier than 1923 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	1	0	0	----------	0	0	0	1
New Hampshire:								
Concord	0	0	0	----------	0	0	0	0
Manchester	0	0	0	----------	0	0	0	0
Nashua	0	0	0	----------	0	0	0	0
Vermont:								
Barre	0	0	0	----------	0	0	0	1
Burlington	0	0	0	----------	0	0	1	0
Massachusetts:								
Boston	31	15	20	----------	0	28	23	11
Fall River	0	1	0	----------	0	1	2	1
Springfield	6	1	0	----------	0	3	0	0
Worcester	0	1	1	----------	0	4	0	1
Rhode Island:								
Pawtucket	0	0	0	----------	0	0	0	0
Providence	3	3	0	----------	0	3	0	2
Connecticut:								
Bridgeport	5	2	0	----------	0	8	0	0
Hartford	0	1	0	----------	0	1	1	0
New Haven	0	1	0	----------	0	0	2	0
MIDDLE ATLANTIC								
New York:								
Buffalo	5	6	0	----------	0	1	0	10
New York	64	112	35	4	2	153	83	66
Rochester	3	1	0	----------	0	0	0	2
Syracuse	4	1	0	----------	0	16	1	1
New Jersey:								
Camden	0	2	2	----------	0	0	0	3
Newark	3	8	0	1	0	30	19	2
Trenton	0	0	1	----------	0	1	0	4
Pennsylvania:								
Philadelphia	24	28	3	1	0	4	11	10
Pittsburgh	8	10	2	----------	0	4	6	7
Reading	1	1	0	----------	0	4	1	0
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	1	3	0	----------	1	0	0	7
Cleveland	23	14	0	1	0	9	6	7
Columbus	3	2	3	----------	0	12	1	1
Toledo	5	2	3	----------	0	7	0	2
Indiana:								
Fort Wayne	1	1	5	----------	0	0	0	1
Indianapolis	1	2	0	----------	0	0	13	4
South Bend	0	0	0	----------	0	0	0	0
Terre Haute	0	0	8	----------	0	0	0	5
Illinois:								
Chicago	24	52	5	----------	0	34	3	25
Springfield	0	0	0	1	0	0	0	1

City reports for week ended July 30, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—continued								
Michigan:								
Detroit	8	21	6		0	138	6	13
Flint	0	1	0		0	0	3	0
Grand Rapids	4	1	0		0	0	4	1
Wisconsin:								
Kenosha	0	0	0		0	7	1	1
Madison	2	0	[1] 2			3	0	
Milwaukee	15	7	0		0	20	1	3
Racine	4	0	0		0	0	2	0
Superior	0	0	0		0	0	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth	0	1	0		0	1	1	1
Minneapolis	1	7	0		0	3	0	6
St. Paul	4	2	0		0	3	4	5
Iowa:								
Des Moines	0	1	2			0	0	
Sioux City	1	0	2			0	1	
Waterloo	0	0	0			0	2	
Missouri:								
Kansas City	0	2	0		0	5	0	5
St. Joseph	1	0	1		0	1	4	2
St. Louis	1	13	5		0	1	4	2
North Dakota:								
Fargo	2	0	0		0	0	0	1
Grand Forks	0	0	0			2	0	
South Dakota:								
Aberdeen	0	0	0			0	0	
Sioux Falls	0	0	0			0	0	
Nebraska:								
Omaha	0	1	1		0	1	0	5
Kansas:								
Topeka	0	0	2		0	4	0	2
Wichita	0	1	0		0	0	0	1
SOUTH ATLANTIC								
Delaware:								
Wilmington	0	1	0		0	0	0	2
Maryland:								
Baltimore	5	7	5		0	3	21	10
Cumberland	0	0	0		0	0	0	0
Frederick	0	0	0		0	0	0	0
District of Columbia:								
Washington	5	4	6	2	2	2	0	3
Virginia:								
Lynchburg	1	0	0		1	0	0	0
Norfolk	0	0	0		0	0	0	3
Richmond	0	2	1		0	0	0	1
Roanoke	0	0	0		0	0	0	0
West Virginia:								
Charleston	0	0	0		0	0	0	0
Wheeling	0	0	0		0	6	0	1
North Carolina:								
Raleigh	0	0	0		0	1	0	0
Wilmington	0	0	0		0	0	0	0
Winston-Salem	0	1	1		1	2	0	0
South Carolina:								
Charleston	0	0	1	6	0	2	0	1
Columbia	0	0	0		0	0	0	0
Georgia:								
Atlanta	0	2	0		0	0	0	3
Brunswick	0	0	0		0	0	0	1
Savannah	0	0	0		0	0	0	2
Florida:								
Miami	1	0	0		0	0	0	1
Tampa	0	1	2		0	0	0	1

[1] Nonresidents.

City reports for week ended July 30, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL								
Kentucky:								
Covington		0						
Lexington	0		1		0	0	0	2
Tennessee:								
Memphis	1	0	0		0	0	0	4
Nashville	2	0	0		0	0	0	1
Alabama:								
Birmingham	0	1	1		1	0	1	2
Mobile	0	0	0		0	0	0	0
Montgomery	0	0	1			0	0	
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith	0	0	1			0	0	
Little Rock	0	0	0		0	0	0	1
Louisiana:								
New Orleans	0	5	6	1	1	0	0	6
Shreveport	0	0	0		0	0	2	1
Oklahoma:								
Oklahoma City	0	1	1		2	2	0	1
Tulsa	1	0	0			1	0	
Texas:								
Dallas	0	2	14		0		0	3
Fort Worth	0	0	2		2	0	0	1
Galveston	0	0	0		0	0	0	0
Houston	0	2	6	1	0	0	0	0
San Antonio	0	1	0		0	0	0	4
MOUNTAIN								
Montana:								
Billings	0	0	0		0	0	0	0
Great Falls	0	0	0		0	2	0	0
Helena	0	0	0		0	0	0	0
Missoula	1	0	0		0	0	0	0
Idaho:								
Boise	0	0	0		0	0	0	1
Colorado:								
Denver	10	6	3		0	2	11	2
Pueblo	1	1	0		0	0	0	0
New Mexico:								
Albuquerque	0	0	1		0	0	0	0
Arizona:								
Phoenix	0	0	1		0	0	0	1
Utah:								
Salt Lake City	7	1	0		0	2	5	3
Nevada:								
Reno	0	0	0		0	0	0	0
PACIFIC								
Washington:								
Seattle	3	1	0			1	4	
Spokane	4	0	0			0	0	
Tacoma	4	1	0		0	0	0	3
Oregon:								
Portland	1	2	0	1	0	6	2	0
Salem	0	0	0			3	0	
California:								
Los Angeles	14	18	12	20	2	9	6	9
Sacramento	3	1	0		0	1	0	1
San Francisco	10	5	1		0	10	1	8

City reports for week ended July 30, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths all causes
NEW ENGLAND											
Maine:											
Portland	1	0	0	0	0	0	1	1	0	6	21
New Hampshire:											
Concord	0	0	0	0	0	0	0	0	0	0	11
Manchester	0	0	0	0	0	0	0	0	0	0	10
Nashua	0	0	0	0	0	0	0	0	0	0	6
Vermont:											
Barre	0	0	0	0	0	0	0	0	0	0	4
Burlington	0	2	0	0	0	0	0	0	0	0	5
Massachusetts:											
Boston	19	24	0	0	0	10	2	2	0	47	146
Fall River	1	1	0	0	0	2	0	0	0	2	17
Springfield	1	7	0	0	0	2	1	0	0	1	27
Worcester	2	4	0	0	0	0	0	0	0	8	33
Rhode Island:											
Pawtucket	1	1	0	0	0	0	0	0	0	0	10
Providence	3	1	0	0	0	1	0	2	0	12	49
Connecticut:											
Bridgeport	1	2	0	0	0	0	0	0	0	7	24
Hartford	1	3	0	0	0	2	0	0	0	4	40
New Haven	1	1	0	0	0	1	0	0	0	12	32
MIDDLE ATLANTIC											
New York:											
Buffalo	6	9	0	0	0	7	0	2	1	16	101
New York	35	31	0	0	0	80	17	22	2	142	1,175
Rochester	3	16	0	0	0	0	0	0	0	7	55
Syracuse	2	3	0	0	0	1	0	0	0	31	40
New Jersey:											
Camden	0	4	0	0	0	2	1	0	0	0	30
Newark	5	4	0	0	0	2	1	0	0	26	70
Trenton	1	3	0	0	0	0	1	0	0	4	25
Pennsylvania:											
Philadelphia	19	31	0	0	0	11	4	6	0	47	325
Pittsburgh	10	12	0	0	0	6	3	2	1	51	102
Reading	0	0	0	0	0	1	0	0	0	12	24
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	5	5	0	0	0	3	2	4	2	4	133
Cleveland	11	12	0	0	0	13	1	1	0	56	187
Columbus	1	3	0	0	0	3	0	1	0	13	76
Toledo	2	3	0	0	0	6	1	1	0	15	63
Indiana:											
Fort Wayne	0	0	0	0	0	0	0	0	0	1	16
Indianapolis	2	1	3	0	0	4	1	0	0	7	--------
South Bend	0	0	0	0	0	0	0	1	0	3	9
Terre Haute	0	1	0	0	0	0	0	2	0	0	20
Illinois:											
Chicago	40	39	2	0	0	38	5	5	1	100	556
Springfield	0	2	0	0	0	0	0	3	0	3	10
Michigan:											
Detroit	26	37	0	0	0	14	3	2	0	133	192
Flint	5	8	1	0	0	0	0	0	0	15	16
Grand Rapids	3	0	0	0	0	0	0	0	0	22	22
Wisconsin:											
Kenosha	0	0	0	0	0	0	0	0	0	9	9
Madison	--------	0	--------	0	--------	--------	0	0	--------	17	--------
Milwaukee	6	2	0	0	0	3	0	1	0	70	88
Racine	1	0	0	0	0	0	0	0	0	3	11
Superior	1	0	0	0	0	0	0	0	0	2	5

City reports for week ended July 30, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL											
Minnesota:											
Duluth	4	5	0	0	0	0	0	0	0	0	16
Minneapolis	10	3	1	0	0	0	0	1	0	3	86
St. Paul	6	2	1	0	0	2	1	0	0	35	45
Iowa:											
Des Moines	1	1	1	0	--------	--------	0	0	--------	0	29
Sioux City	0	0	0	3	--------	--------	0	0	--------	4	--------
Waterloo	0	0	0	0	--------	--------	0	0	--------	0	--------
Missouri:											
Kansas City	2	2	0	0	0	9	1	0	0	16	81
St. Joseph	0	0	0	0	0	1	0	0	0	2	38
St. Louis	7	1	0	0	0	12	4	6	1	8	224
North Dakota:											
Fargo	0	0	0	0	0	0	0	0	0	0	6
Grand Forks	0	0	0	0	--------	--------	0	0	--------	0	--------
South Dakota:											
Aberdeen	--------	2	1	0	--------	--------	0	0	--------	3	--------
Sioux Falls	--------	0	1	0	--------	--------	0	0	--------	0	6
Nebraska:											
Omaha	1	3	1	0	0	1	0	0	0	6	47
Kansas:											
Topeka	0	0	0	0	0	0	0	0	0	14	37
Wichita	1	0	0	0	0	1	1	0	0	1	25
SOUTH ATLANTIC											
Delaware:											
Wilmington	1	0	0	0	0	1	0	0	0	0	26
Maryland:											
Baltimore	6	8	0	0	0	13	5	1	0	69	148
Cumberland	0	0	0	0	0	0	0	0	0	0	10
Frederick	0	0	0	0	0	0	0	0	0	0	2
District of Col.:											
Washington	5	7	0	0	0	7	2	4	2	9	126
Virginia:											
Lynchburg	0	1	0	0	0	0	1	0	0	41	19
Norfolk	--------	1	0	0	0	1	1	1	0	8	21
Richmond	2	3	0	0	0	8	1	4	0	0	48
Roanoke	0	1	0	0	0	0	0	0	0	1	16
West Virginia:											
Charleston	0	0	0	0	0	0	1	0	0	0	11
Wheeling	1	0	0	0	0	0	0	1	0	1	12
North Carolina:											
Raleigh	0	0	0	0	0	1	0	1	0	9	19
Wilmington	0	0	0	0	0	0	0	0	0	1	10
Winston-Salem	0	4	0	0	0	3	1	0	0	14	16
South Carolina:											
Charleston	0	0	0	0	0	5	1	7	0	0	28
Columbia	0	0	0	0	0	0	2	4	0	5	--------
Georgia:											
Atlanta	2	0	1	0	0	3	3	9	1	4	57
Brunswick	0	0	0	0	0	0	0	0	0	0	6
Savannah	0	0	0	0	0	3	2	1	0	0	44
Florida:											
Miami	--------	0	0	0	0	2	1	0	0	1	20
Tampa	0	0	0	0	0	0	0	0	0	0	17
EAST SOUTH CENTRAL											
Kentucky:											
Covington	0	--------	0	--------	--------	--------	0	--------	--------	--------	--------
Lexington	--------	0	--------	0	0	3	--------	0	0	0	16
Tennessee:											
Memphis	1	0	0	0	0	7	9	5	0	7	106
Nashvile	0	0	1	0	0	4	5	1	1	4	48

City reports for week ended July 30, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
EAST SOUTH CENTRAL—contd.											
Alabama:											
Birmingham	1	1	1	0	0	6	4	3	1	6	60
Mobile	0	0	0	0	0	1	1	0	0	0	17
Montgomery	0	0	0	0			1	4		0	
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	0	0	0			1	0		0	
Little Rock	0	0	0	0	0	1	1	0	0	0	2
Louisiana:											
New Orleans	4	1	0	0	0	13	5	8	2	0	135
Shreveport	0	1	0	0	0	1	1	4	0	0	29
Oklahoma:											
Oklahoma City	1	3	0	0	0	2	4	0	0	4	48
Tulsa	1	0	0	0			1	5		6	
Texas:											
Dallas	2	0	0	0	0	2	3	2	0	8	62
Fort Worth		3	1	0	0	1	1	0	1	0	32
Galveston	0	0	0	0	0	4	0	0	0	0	7
Houston	1	1	0	0	0	4	1	0	0	0	60
San Antonio	1	0	0	0	0	6	2	1	0	0	67
MOUNTAIN											
Montana:											
Billings	0	0	0	0	0	0	0	0	0	0	5
Great Falls	0	1	0	0	0	0	1	1	0	0	3
Helena	0	0	0	0	0	0	0	0	0	0	6
Missoula	0	0	0	0	0	0	0	0	0	0	5
Idaho:											
Boise	0	0	0	3	0	0	0	0	0	0	7
Colorado.											
Denver	3	5	0	0	0	7	1	0	0	17	62
Pueblo	0	0	0	0	0	1	1	2	0	8	8
New Mexico:											
Albuquerque	0	2	0	0	0	2	1	1	0	3	6
Arizona:											
Phoenix	0	0		0	0	2	1	0	0	0	
Utah·											
Salt Lake City	1	0	0	0	0	1	0	1	0	15	27
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	3
PACIFIC											
Washington:											
Seattle	2	5	2	8			0	2		3	
Spokane	0	0	2	0			0	0		6	
Tacoma	1	2	2	2	0	0	0	0	0	5	28
Oregon:											
Portland	2	0	4	1	0	2	1	0	0	2	59
Salem	0	0	0	0				0		5	
California:											
Los Angeles	12	12	2	0	0	17	2	0	0	103	245
Sacramento	1	0	0	0	0	1	0	1	0	2	8
San Francisco	5	0	0	0	0	8	1	0	0	3	138

City reports for week ended July 30, 1932—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Springfield	1	0	0	0	0	0	0	0	0
Connecticut:[1]									
New Haven	0	0	0	0	0	1	0	0	0
MIDDLE ATLANTIC									
New York:									
New York	3	3	2	1	0	0	12	3	0
New Jersey:									
Camden	0	0	0	0	0	0	0	1	0
Pennsylvania:									
Philadelphia	0	0	0	0	0	0	0	16	1
Pittsburgh	1	1	0	0	0	0	0	1	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	0	0	0	0	0	0	0	1	0
Cleveland	0	0	0	0	0	0	1	1	0
Indiana:									
Indianapolis	7	1	0	0	0	0	0	0	0
Illinois:									
Chicago	1	0	0	0	0	0	0	1	0
Michigan:									
Detroit	1	0	0	0	0	0	1	4	0
Wisconsin:									
Milwaukee	0	0	0	1	0	0	0	1	0
WEST NORTH CENTRAL									
Minnesota:									
St. Paul	1	0	0	0	0	0	0	0	0
Missouri:									
Kansas City	0	0	0	0	0	0	0	0	2
SOUTH ATLANTIC									
Maryland:									
Baltimore	0	0	1	1	0	0	1	0	0
District of Columbia:									
Washington	0	0	1	1	0	0	0	0	0
West Virginia:									
Charleston	0	0	0	0	1	0	0	0	0
South Carolina:									
Charleston	0	0	0	0	1	1	0	1	1
Columbia	1		0		0		0	1	
Georgia:[2]									
Atlanta	0	0	0	0	0	0	0	2	1
Brunswick	0	0	0	0	0	1	0	0	0
Florida:									
Miami	0	0	0	0	1	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis	0	0	0	0	1	0	0	1	0
Nashville	0	1	0	0	0	0	0	0	0
Alabama:[2]									
Birmingham	1	0	0	0	0	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
Shreveport	0	0	0	0	0	2	0	0	0
Texas:									
Dallas	1	1	0	0	0	0	0	0	0
Houston[2]	0	0	0	0	0	0	0	1	0
San Antonio	1	0	0	0	0	1	0	0	0
PACIFIC									
Oregon:									
Portland	0	0	0	0	0	0	0	1	0
California:									
San Francisco	0	1	0	0	0	0	0	0	1

[1] Rabies in man, 1 death at Hartford, Conn.
[2] Typhus fever: 4 cases: 2 cases at Savannah, Ga., 1 case at Mobile, Ala., and 1 case at Houston, Tex.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended July 30, 1932, compared with those for a like period ended August 1, 1931. The population figures used in computing the rates are estimated mid-year populations for 1931 and 1932, respectively, derived from the 1930 census. The 98 cities reporting cases have an estimated aggregate population of more than 34,000,000. The 91 cities reporting deaths have more than 32,400,000 estimated population.

Summary of weekly reports from cities, June 26 to July 30, 1932—Annual rates per 100,000 population, compared with rates for the corresponding period of 1931 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931	July 23, 1932	July 25, 1931	July 30, 1932	Aug. 1, 1931
98 cities	[3] 44	[3] 47	[4] 31	43	[4] 31	42	[4] 27	33	[4] 25	35
New England	204	96	46	60	60	65	29	50	50	53
Middle Atlantic	27	53	28	50	28	37	21	34	19	31
East North Central	25	49	23	41	25	50	20	39	16	38
West North Central	59	33	40	31	45	31	30	33	21	17
South Atlantic	[3] 28	[3] 12	31	18	29	24	22	28	31	32
East South Central	12	12	[4] 6	23	[4] 12	29	[4] 25	12	[4] 12	12
West South Central	89	27	106	61	63	47	46	24	89	61
Mountain	26	[5] 9	17	17	17	61	34	35	26	35
Pacific	34	51	11	41	23	51	63	16	25	47

MEASLES CASE RATES

	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931	July 23, 1932	July 25, 1931	July 30, 1932	Aug. 1, 1931
98 cities	[3] 371	[3] 384	[4] 242	316	[4] 235	181	[4] 144	133	[4] 84	93
New England	630	402	558	351	395	317	247	209	115	132
Middle Atlantic	345	284	188	311	214	144	143	111	94	84
East North Central	641	768	409	527	419	316	239	214	131	153
West North Central	57	140	74	103	81	61	55	34	36	27
South Atlantic	[3] 154	[3] 311	104	259	63	107	29	83	31	47
East South Central	0	352	[4] 0	117	[4] 6	117	[4] 0	106	[4] 0	47
West South Central	53	24	33	27	23	17	23	14	10	10
Mountain	431	[5] 215	267	122	155	122	112	174	52	209
Pacific	227	149	185	182	145	123	80	125	40	57

SCARLET FEVER CASE RATES

	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931	July 23, 1932	July 25, 1931	July 30, 1932	Aug. 1, 1931
98 cities	[3] 136	[3] 105	[4] 83	79	[4] 84	70	[4] 63	53	[4] 52	47
New England	280	188	201	142	165	149	156	111	105	82
Middle Atlantic	168	135	82	89	98	68	57	56	50	52
East North Central	167	122	110	90	91	106	66	69	66	52
West North Central	63	81	45	44	72	42	59	29	30	31
South Atlantic	[3] 58	[3] 55	43	49	39	34	53	38	47	42
East South Central	29	47	[4] 0	53	[4] 37	23	[4] 25	6	[4] 6	35
West South Central	36	41	10	34	33	34	43	44	10	20
Mountain	52	[5] 36	86	52	9	26	78	0	52	61
Pacific	53	47	46	49	57	12	38	12	36	16

See footnotes at end of table.

Summary of weekly reports from cities, June 26 to July 30, 1932—Annual rates per 100,000 population, compared with rates for the corresponding period of 1931—Continued

SMALLPOX CASE RATES

	Week ended— July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931	July 23, 1932	July 25, 1931	July 30, 1932	July 1, 1931
98 cities	[3] 2	[3] 6	[4] 1	2	[4] 1	3	[4] 1	3	[4] 2	2
New England	0	0	0	2	0	0	0	0	0	0
Middle Atlantic	0	0	0	0	0	0	0	0	0	0
East North Central	1	8	0	1	0	4	0	2	0	1
West North Central	2	10	2	4	0	4	2	10	6	11
South Atlantic	[2] 0	[2] 0	0	4	0	0	0	0	0	2
East South Central	6	23	[4] 6	6	[4] 0	0	[4] 0	6	[4] 0	6
West South Central	3	24	0	10	0	7	0	0	0	3
Mountain	17	[5] 0	43	0	26	0	0	0	26	0
Pacific	10	14	4	8	10	22	11	20	10	8

TYPHOID FEVER CASE RATES

	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931	July 23, 1932	July 25, 1931	July 30, 1932	July 1, 1931
98 cities	[3] 13	[3] 10	[4] 12	14	[4] 13	13	[4] 21	16	[4] 20	27
New England	5	10	5	2	7	12	5	10	12	12
Middle Atlantic	4	5	5	8	8	8	10	8	14	13
East North Central	10	3	10	5	13	5	13	5	12	12
West North Central	6	10	11	19	13	2	30	19	13	31
South Atlantic	[2] 42	[2] 10	24	28	18	47	43	69	63	77
East South Central	75	41	[4] 69	59	[4] 69	35	[4] 69	47	[4] 81	65
West South Central	56	71	46	81	33	58	125	10	49	109
Mountain	9	[5] 36	17	35	9	26	0	0	34	17
Pacific	4	4	4	6	10	6	11	27	6	4

INFLUENZA DEATH RATES

	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931	July 23, 1932	July 25, 1931	July 30, 1932	July 1, 1931
91 cities	[3] 3	[3] 3	[4] 2	3	[4] 2	2	[4] 3	1	[4] 2	3
New England	0	0	0	2	7	0	2	0	0	2
Middle Atlantic	4	1	2	4	1	0	4	1	1	4
East North Central	4	1	3	2	2	4	1	2	1	2
West North Central	0	9	0	0	0	3	3	0	0	0
South Atlantic	[2] 2	[2] 4	0	4	6	4	2	2	8	6
East South Central	13	19	[4] 7	6	[4] 0	0	[4] 0	0	[4] 7	13
West South Central	0	10	3	7	0	3	13	3	3	0
Mountain	0	[5] 9	9	0	9	0	0	0	0	0
Pacific	2	5	0	0	0	0	0	2	5	7

PNEUMONIA DEATH RATES

	July 2, 1932	July 4, 1931	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931	July 23, 1932	July 25, 1931	July 30, 1932	July 1, 1931
91 cities	[3] 53	[3] 64	[4] 49	59	[4] 45	47	[4] 49	44	[4] 48	48
New England	62	36	53	79	74	50	62	31	41	41
Middle Atlantic	61	67	63	59	46	63	49	55	46	59
East North Central	35	61	32	47	31	29	33	32	41	30
West North Central	64	77	35	88	41	71	70	53	87	47
South Atlantic	[2] 52	[2] 67	67	71	57	40	73	44	49	65
East South Central	31	83	[4] 27	51	[4] 20	45	[4] 84	45	[4] 48	51
West South Central	91	90	57	86	91	45	67	52	50	59
Mountain	60	[5] 72	43	61	52	35	78	17	52	44
Pacific	44	46	37	31	32	24	37	43	49	36

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1932, and 1931, respectively.
[2] Columbia, S. C., not included.
[3] Columbia, S. C., and Billings, Mont., not included.
[4] Covington, Ky., not included.
[5] Billings, Mont., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Two weeks ended July 23, 1932.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases for the two weeks ended July 23, 1932, as shown in the following table. Provinces not given in the table did not report any case of any disease included in the table.

Province	Cerebrospinal meningitis	Influenza	Poliomyelitis	Smallpox	Typhoid fever
Nova Scotia		7	1		1
New Brunswick					2
Quebec		1	21		49
Ontario	1		1		22
Manitoba	1			1	3
Saskatchewan				8	1
Alberta	1		2		5
British Columbia		1			2
Total	3	9	25	9	85

Quebec Province—Communicable diseases—Week ended July 23, 1932.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended July 23, 1932, as follows:

Disease	Cases	Disease	Cases
Chicken pox	17	Poliomyelitis	11
Diphtheria	20	Scarlet fever	28
Erysipelas	4	Tuberculosis	69
German measles	3	Typhoid fever	18
Influenza	1	Whooping cough	21
Measles	19		

CHILE

Plague-infected rats—Antofagasta.—On August 7, 1932, three plague-infected rats were reported confirmed bacteriologically at Antofagasta, Chile.

DENMARK

Communicable diseases—May, 1932.—During the month of May, 1932, cases of certain communicable diseases were reported in Denmark as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	14	Paratyphoid fever	22
Chicken pox	49	Poliomyelitis	2
Diphtheria and croup	162	Puerperal fever	11
Erysipelas	204	Scabies	516
German measles	5	Scarlet fever	160
Gonorrhea	738	Syphilis	75
Influenza	4,117	Typhoid fever	1
Lethargic encephalitis	14	Undulant fever (Bac. abort. Bang)	42
Measles	3,690	Whooping cough	2,908
Mumps	211		

LATVIA

Communicable diseases—April, 1932.—During the month of April, 1932, cases of certain communicable diseases were reported in the Republic of Latvia as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	9	Paratyphoid fever	11
Diphtheria	41	Poliomyelitis	2
Erysipelas	31	Scarlet fever	37
Influenza	1,074	Tetanus	1
Leprosy	2	Trachoma	82
Measles	58	Typhoid fever	30
Mumps	132	Whooping cough	209

PANAMA CANAL ZONE

Communicable diseases—June, 1932.—During the month of June, 1932, certain communicable diseases, including imported cases, were reported in the Panama Canal Zone and terminal cities as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Chicken pox	10		Pneumonia		17
Diphtheria	8		Scarlet fever	1	
Dysentery (amebic)	1	1	Tuberculosis		21
Malaria	118	2	Typhoid fever	1	
Measles	18		Whooping cough	3	
Mumps	5				

TRINIDAD

Port of Spain—Vital statistics—June, 1931, 1932.—During the months of June, 1931 and 1932, certain vital statistics were reported in Port of Spain, Trinidad, as follows:

	June, 1931	June, 1932		June, 1931	June, 1932
Number of births	160	152	Deaths under 1 year	20	18
Birth rate per 1,000 population	28.8	26.2	Deaths under 1 year per 1,000 births	125.0	118.4
Number of deaths	93	93			
Death rate per 1,000 population	16.5	16.1			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place		Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Apr. 3–30, 1932	Week ended— May, 1932 7	May 14	May 21	May 28	June, 1932 4	June 11	June 18	June 25	July, 1932 2	July 9	July 16	July 23	July 30
China:																	
Amoy	C										3		15	149	392	399	
	D										2		11	85	202	181	
Canton	C		2	1			1	1	2	49	330	298	203	96	37	22	6
	D						1		1	22	152	90	73	24	7	2	1
Dairen.[1]																	
Hankow	C	1		3		8					6	10	10	10	9		
	D			1		3							3	3	2		
Hong Kong	C											9	45	33	19	21	39
	D											9	18	33	8	7	16
Kwantung	C												P				
Macao	D														5	21	
Nanking	C										123	131	104	111	78	104	
	D										45	34	22	21	8	19	
Newchwang	C											1	5				
	D												4				
Shanghai	C				11	11	8	40	92	90	130	276	314	217	318	411	
	D					1	1	1	10	9	23	11	20	21	16	35	
Swatow[2]	C						1			1		49	48	46			
	D											3	3				
Tientsin	C									3	16	22	19	9	7		
	D										5	3	3	2			
India	C	5,826	4,952	6,295	1,497	1,126	923	840	852	787							
	D	2,788	2,358	3,194	731	592	400	447	427	419							
Bombay	C	1												1	1		
	D	1												1			

[1] 119 cases, 71 deaths, in Dairen up to Aug. 6, 1932.
[2] Local unofficial reports included 159 deaths from cholera in Swatow, China, from June 10 to 30, 1932.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

CHOLERA—Continued

[C indicates cases; D, deaths; P, present]

Place		Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Apr. 3–30, 1932	Week ended— May, 1932: 7	14	21	28	June, 1932: 4	11	18	25	July, 1932: 2	9	16	23	30
India—Continued.																	
Calcutta	C	1, 118	162	350	174	228	141	106	79	63	106	132	143	129	76		
	D	54	73	148	58	125	79	59	38	27	51	70	60	53	35		
Chittagong	C	1	2														
	D	22	1														
Madras	C	3	6														
	D	3	3														
Rangoon	C						1				1	2			1		
	D						1				1	1					
India (French):																	
Chandernagor	C				11		3	5			1						
	D				5		2	5			1						
Karikal	C	2															
Pondicherry Territory	C		2														
	D		2														
Pondicherry	C		1														
	D		1														
Indo-China (see also table below):																	
Pnompenh	C			1			1		1		1	1					
	D			1			1		1		1	1					
Saigon and Cholon	C	1	1	2	1	1	2	2	2	2	1	1	1				
	D			2	1	1	2	2	1	1	1	1	1				
Japan:																	
Kobe	C									1	1						
Tokyo	C									1	2						
Persia: Kouh Bezman	C			[1] 1													
Philippine Islands:																	
Bulacan Province	C																2
	D																1
Capiz Province	C	23															
	D	20															
Iloilo Province	C																1
	D																1
Laguna Province	D													1			

Siam	C		1	2				8	8							1	
	D		2	1				7	4								
Bangkok	C		2	1							2						
	D		1														
On vessels:																	
S. S. Angora at Rangoon from Calcutta	C		1														
S. S. Narbada at Rangoon from Calcutta	C			1													
	D			1													
S. S. Shanghai Maru at Kobe from Shanghai	C								1								
S. S. President Wilson en route to Manila from Honolulu via Shanghai and Hong Kong	C											2					
	D											1					

Place		January, 1932	February, 1932	March, 1932	April, 1932			May, 1932			June, 1932		
					1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-30
Indo-China (French) (see also table above):													
Annam [4]	C		4					93	20	21			
	D		4					7	2	6			
Cambodia [4]	C	12	5	10	4	1	20	12	6		13	16	13
	D	6	4	5	3		8	2	1		10	12	7
Cochin-China [4]	C	5	7	9	3	6	18	11	30		17	17	17
	D	4	5	5	2	3	13	8	21		16	12	14
Laos [4]	C				7								
	D				3								

[3] A suspected case.
[4] Reports incomplete.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE[1]

[C indicates cases; D, deaths; P, present]

Place		Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Apr. 3–30, 1932	Week ended— May, 1932: 7	14	21	28	June, 1932: 4	11	18	25	July, 1932: 2	9	16	23	30
Argentina:																	
Cordoba Province[2]	C			2													
Rosario	D							1									
San Luis Province	C									1	1						
Belgian Congo	C							2									
British East Africa (see also table below):																	
Tanganyika	C		2						19	1							
	D								11								
Uganda	C	8	4	39	11	9	6	11	16	25	8	20					
	D	6	4	36	7	8	6	10	15	24	7	16					
Canary Islands: Palma Island—Los Lanos	C					1											
Ceylon: Colombo	C	4	3	2	1	3		2	5	3	3	2	5	1			
	D	3	3	2	1	1		2	5	3	3	2	5	1			
Plague-infected rats			1	1	5	2	2		4								
Chile: Antofagasta.[3]																	
China:																	
Kwang Chow Wan	C		8														
	D		8														
Shensi Province	C	P															
Dutch East Indies:																	
Java—Tegal	C	1															
Java and Madura	D	459	362	365	70	62	76	71	72								
West Java	C	141	213	239			41	44	45	63	51						
	D	139	213	237			41	43	45	63	51						
Ecuador (see table below).																	
Egypt:																	
Alexandria	C		2		1	2	1	8	1	2		1	3	1		1	
	D					2		1	2	1	1		1	1			
Assiout	C																1
Beheira	C			1	2				1	1						1	1
	D			1	3				1							2	
Beni Suef	C			37	2												
	D			8	3												
Gharbieh	C								2		1						
	D									1							
Minieh	C		3													1	
	D		3													1	

Hawaii Territory:																	
Hawaii Island—																	
Hamakua—																	
Honokaa	C	2															
	D	2															
Plague-infected rats		1															
Kukaiau—Plague-infected rats								1	1								
Maui Island—																	
Makawao [4]	C	1															
	D	1															
Plague-infected rats		4															
India	C	8,593	9,724	5,197	684	474	256	259	133	101							
	D	4,970	5,543	3,219	505	360	203	192	91	70							
Bassein	C	4	9	5	2					2		1		2			
	D	4	7	4	2					2		1		1			
Bombay	C	5	8	19	2	2	1		1								
	D	5	6	15	1	2	1		1						1		
Plague-infected rats		109	117	122	25	21	1	11	3		9	11	5	5	5	6	
Madras	C			[5] 1													
	D			1													
Madras Presidency	C	70	158	69	18	5	6	11	13			13					
	D	47	86	24	4	4	1	2	8			2					
Rangoon	C	9	4	7				1				1	2				1
	D	8	4	6									2				1
Plague-infected rats		2	8	5		2		1		1		2	2	2	1		
Indo-China (see table below).																	
Iraq: Baghdad	C	3										1				1	
	D	1															
Madagascar (see table below).																	
Morocco	C													5			
Peru (see table below).																	
Senegal (see table below).																	
Siam	C	1	7														
	D		3														
Southwest Africa. [6]																	
Syria: Beirut	C			2							1		2			1	1
Union of South Africa: Orange Free State	C	P	P														
	D	1	10														
United States: California—Los Angeles—Plague-infected rats				1	2					1							
On vessel:																	
Steamship Columbia, at Naples from Barcelona—Plague-infected rats												2					

[1] Including plague in the United States and its possessions.
[2] 10 cases of bubonic plague were reported in Cordoba Province, Argentina, in January, 1932. They were distant from railroad and 500 kilometers from ports.
[3] 3 plague-infected rats at Antofagasta, Chile, Aug. 6, 1932.
[4] 1 death from plague Aug. 1, 1932, was reported in Makawao District, Maui Island, Hawaii Territory.
[5] An imported case.
[6] 80 cases of plague with 15 deaths were reported in Ovamboland, Southwest Africa, up to Apr. 30, 1932. Antiplague measures have been taken.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place		January, 1932	February, 1932	March, 1932	April, 1932	May, 1932	June, 1932
British East Africa (see also table above): Kenya	C	17	33	22	18	11	30
Ecuador:							
Province—							
Chimborazo	C	8	13		6	10	2
Loja	C	11					
Indo-China	C	17	P	P	9	2	1
	D	9			6	1	1
Madagascar:							
Province—							
Ambatolampy	C	23	40	25			
	D	23	38	25			
Ambositra	C	166	90	81	19		
	D	152	81	67	17		
Antisirabe	C	53	45	54	21		
	D	51	45	53	21		
Meavatanana	C			4			
	D			4			

Place		January, 1932	February, 1932	March, 1932	April, 1932	May, 1932	June, 1932
Madagascar—Continued.							
Province—Continued							
Miarinarivo	C	15	13	9	6		
	D	15	12	9	6		
Moramanga	C	13	9	3			
	D	13	9	3			
Tananarive	C	203	148	71	42		
	D	196	140	70	40		
Peru [7]	C	11	2	1	2	5	2
	D	8	2				
Senegal:							
Dakar [8]	C			10			
	D			5			
Louga [8]	C					3	1
	D					2	1
Rufisque [8]	C					3	21
	D					3	17
Yombel [8]	C			9			
	D			5			

[7] The reports of plague in Libertad Province, Peru, as published in previous issues of Public Health Reports, are erroneous. The Chief of the Peru Antiplague Service states that cases of plague have occurred in Peru since Jan. 1, 1932, as follows. January, 11 cases, February, 2 cases; March, 1 case; April, 2 cases; May, 5 cases; June, 2 cases.
[8] Reports incomplete.

SMALLPOX

Place		Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Apr. 3–30, 1932	Week ended— May, 1932: 7	14	21	28	June, 1932: 4	11	18	25	July, 1932: 2	9	16	23	30
Aden	C		1														
Algeria.																	
Algiers	C									1	1						
Constantine Department	C			2	1		1										
Philippeville	C			1													
Southern Territories	C	2															
Brazil.																	
Porto Alegre (alastrim)	C	19	5	8	2	2					3	2	3				
	D		1														
Santos	C														2		
British East Africa: Tanganyika	C	5	P		79	11			19		4						
	D	2							11		1						
British South Africa																	
Northern Rhodesia	C									4							
Southern Rhodesia	C		4	7													
Canada																	
British Columbia	C	17	9									[1] 1					
	D	9	3														
Manitoba	C			1												[1] 1	
Nova Scotia	C	1															
Ontario	C	21	4	6	1			23						[1] 1			
Quebec	C	8										[1] 1					
Saskatchewan	C	30	6	8	3	1	3	6		[1] 1		[1] 2		[1] 3		[1] 8	
China:																	
Amoy	C	121	45	17	3		2	3				1					
	D	44	25	11	2		2	2				1					
Canton	C	44	79	81	19	9	5	9	1	3	3	3	1	1	1		
	D	1	7	1	1												
Foochow	C	P	P	P		P		P		P		P		P			
Hankow	C	4	5	3	1	1	3										
	D	1															
Hong Kong	C	51	45	55	7	9	7	1	4	5	2	1	1		1		
	D	23	28	20	7	6	2	2	4	6	1	1	1			1	
Manchuria: Dairen	C	1	16	8	1		1			2	3						
	D			2	1		1			2	1						

[1] These cases of smallpox are for periods of 2 weeks.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Apr. 3–30, 1932	Week ended— May, 1932: 7	May 14	May 21	May 28	June, 1932: 4	June 11	June 18	June 25	July, 1932: 2	July 9	July 16	July 23	July 30
China—Continued.																	
Shanghai	C	167	102	90	16	6	5	6	3	3							
	D	467	45	35	6	5		2	1	2							
Swatow	C	1															
Tientsin	C	2	8	2	1				2								
	D	1	1														
Chosen (see table below).																	
Dahomey	C		6	5	2					15		9					
	D		1	1						6		1					
Dutch East Indies	C													6			
Egypt:																	
Alexandria	C		1			1	1				1				1	3	3
Cairo	C														1		1
Suez	C	2	20	4	1												
	D		3														
Finland	C							1									
Gold Coast (see table below).																	
Great Britain:																	
England and Wales	C	258	273	315	68	76	56	68	49	36	25	30	22	35	37	10	
London	C	136	129	137	41	39	25	29	49	18	15	18	19	28	27	5	
London and Great Towns	C	203	236	257	59	60	47	52	37	31	37	23	21	32	32	10	
Greece (see table below).																	
Guatemala (see table below).																	
Honduras: [2]																	
Ceiba	D	1	2	2													
Puerto Castilla	C	4		4			1	P			2				1	P	
Tegucigalpa	C	5															
Tela	C		2	2				1									
Trujillo	C	35															
	D	5															
India	C	9,709	12,040	13,716	4,230	3,388	2,771	2,879	3,418	2,623							
	D	1,896	2,234	2,895	996	796	676	815	812	620							
Bassein	C			1													
	D			1													
Bombay	C	23	27	25	10	12	2	12	7	4	5	6	5	3	9	9	
	D	10	12	10	2	4	1	5	4	2	3	4	3	3	6	8	

Calcutta	C	102	159	133	17	35	22	19	15	16	21	12	12	12	10	6	
	D	54	115	99	12	29	16	10	17	14	8	8	9	10	8	6	
Chittagong	C		2			2											
	D		1			1											
Cochin	C	9	3	1												2	
Karachi	C	23	19	29	4	5	3	4	7	5	3	5	1				
	D	8	8	9		2	1	3	1	1	1	1					
Madras	C	15	51	58	17	10	10	10	3	8	5	6	8	8	6	13	
	D	4	16	11	2	4	2	3		3	2	3	2	3		2	
Moulmein	C	4	7	1						5							
Negapatam	C	1	1				1	2									
	D						1										
Rangoon	C	418	606	260	18	26	13	9	6	10	5	8	8	7	9	2	
	D	127	179	88	9	11	6	2	4	4	1	2	2	1	3		
Tuticorin	C	36	14	5	4						1						
	D	8	9	3	5						1						
Vizagapatam	C	3	2										1				
India (French):																	
Karikal	C	4	19	21	2	4	1	4		2							
	D	4	9	12	2	2	1	2		1							
Pondicherry Territory	C	20	29	22	3	5	28	11		4	2	1	3		5	3	
	D	20	20	19	3	5	28	11		4	2	1	3		5	3	
Indo-China (see also table below):																	
Pnompenh	C	2	1														
Saigon and Cholon	C	145	212	113	12	88	8	5	3	3	3	9	2		2	2	
	D	85	174	101	11	7	7	5	3	3	2	9	2		2	2	
Iraq:																	
Baghdad	C	4	20	27	4	7	10		14	9	3	1			1	4	3
	D	4	10	13	2	3	3		6	4	2						1
Basra	C	2	11	4	1	1	4	2	2	4	2			4			
	D			4		1	1	1	1		1			1	1		
Ivory Coast (see table below).																	
Japan:																	
Kobe	C	1	2	1		1	7	2									
	D		1					1									
Nagasaki	C				1	4	4	4	1	1	1						
Osaka Prefecture [2]	C			93	34	48											
Osaka	C					1											
Taiwan	C	58	1	1													
Mexico:																	
Chihuahua	D	3	1	1			1			5						1	2
Durango	D			1													
Jalisco (State)—Guadalajara	D		1	2		1	1		1	1							
Mexico City and surrounding territory	C	33	6	16	3	2	3	9	4	7	2	5	6	2	5		
	D	1		2		1									1		
Monterrey	C	8	1	2	1			1									
Saltillo	D						1	2	2				2	1			
San Luis Potosi	D	2	3	2	1			1		1							
Torreon	C	2	2	3		1	1	1	1	1	1						
	D	3	2	3		3			1			1					

[1] 590 cases of smallpox with 15 deaths were reported in Honduras from July, 1931, to Feb. 16, 1932.

[2] 264 cases of smallpox were reported in Osaka Prefecture, Japan, from Mar. 1 to May 28, 1932.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Apr. 3–30, 1932	Week ended— May, 1932: 7	14	21	28	June, 1932: 4	11	18	25	July, 1932: 2	9	16	23	30
Morocco (see table below).																	
Nigeria	C	46	750	116		939		104									
	D	2	111	19		316		17									
Palestine	C					1									1		
Poland	C					1			1								
Portugal:																	
Lisbon	C	50	38	26	10	5	8	6	2	5	6	12	1	2	3	4	
Oporto	C	14	14	21	3	5	8	8	4	9	8	2	8	7	10	4	
Salvador	C	85	10														
Sarawak	C														7		
Siam	C		2					1	8	1							
Sierra Leone [4]	D								4	1							
Straits Settlements	C	6	1														
	D		2							1	1	1					
Sudan (Anglo-Egyptian)	C	8	4	3													
	D	1															
Syria (see table below).																	
Tunisia: Tunis	C		1														
Turkey (see also table below): Istanbul	C	1		1		1						2					
Union of South Africa:																	
Cape Province	C			P	P	P	P	P	P			P					
Orange Free State	C			P													
Transvaal	C		P	P	P		P	P	P	P							
Upper Volta	C						11		1								
	D						1										
On vessels:																	
S. S. Frauenfels at Suez from Calcutta	C		1														
S. S. MacGillivary at Suez from Rangoon	C		[5] 1														
S. S. Tainui at Southampton from New Zealand	C		[5] 1														
S. S. Glenbank at Suez from Aden	C		1														
S. S. Tuscania at Suez from Bombay	C								1								

[4] From Mar. 6 to June 11, 1932, 814 cases of smallpox, with 11 deaths, were reported in Sierra Leone.
[5] A suspected case.

Place		January, 1932	February, 1932	March, 1932	April, 1932			May, 1932			June, 1932	
					1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20
Gold Coast	C	2								2		
	D	1										
Indo-China (see also table above)	C	309	660	727	175	247	146	211	78		61	180
	D	148	231	342	80	97	64	46	37		27	41
Ivory Coast	C										19	
	D										1	
Syria: Beirut	C	5			1		1					

Place		January, 1932	February, 1932	March, 1932	April, 1932	May, 1932	June, 1932
Chosen	C	1	6	30	55	55	
	D		3	9	5	8	
Greece	C			1	8		
Guatemala	C	5					
	D	1					
Morocco	C	488	368	308	101	101	27
Turkey (see also table above)	C	31	22	2			
	D	1	1				

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

Place		Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Apr. 3–30, 1932	Week ended— May, 1932 7	14	21	28	June, 1932 4	11	18	25	July, 1932 2	9	16
Algeria:																
Algiers	C	1	3	7	40	7	23	31		8	5	5	12	33		
Constantine Department	C	7		7						1				9		69
Geryville	C	7	1													
Oran	C			1					4	10						
Bulgaria	C	44	66	44	45	10	7	16	5	4	5	3	3	3		
	D	6	6	2	9		2	1		1		1				
Chile:																
Antofagasta	C	1						1					1			
Iquique	C										1					
Santiago	C			1	1				1	1	5	1	1			
China:																
Hankow	C			5			1		1			1		1		
Swatow	C		2													
Tientsin	C						1									
Chosen (see table below).																
Colombia: Cali	D		1													
Czechoslovakia (see table below).																
Egypt:																
Alexandria	C		1						1	5	2		1			
Beheira	C		70	46	14											
	D		16		5											
Dakahlia	C				1			69								
Gharbieh	C		12		5											
	D				2											
Port Said	C									1						2
Provinces	C	43	333	676	222	27	38	38	60	139						
	D	3	25	49	43	6	1	1		10						
Greece (see table below).																
Guatemala (see table below).																

Irish Free State:																
Roscommon County—																
Leitrim	C							1								
	D							1								
Roscommon	C									1						
Lithuania (see table below).																
Mexico:																
Mexico City, including municipalities in Federal District	C	25	20	7	11	2		5	1	2	4		1	3	3	3
	D	9	12	4	3				2		1		1	1	1	1
San Luis Potosi	D		1	1												
Morocco	C	6	59	29	34	3	7	7	2	13	5	4	4	5		
	D		6	6	1						3					
Palestine	C	3	1			1				2	1		1		1	
Paraguay: Asuncion	D		1													
Persia	C								123	69						
	D								4	5						
Poland	C	265	215	255	414	70	106	106	98	83	77	21	23	38	30	18
	D	10	21	22	39	7	4	5	9	3	4	1	6	3	3	1
Portugal:																
Lisbon	C									2	5					
Oporto	C	1	1		10	3				4						
Rumania	C	264	296	270	252	61	60	53	60	40						
	D	13	28	31	21	8	8		7	5						
Tunisia: Tunis	C	1	24	81	77	26	15	13	1	13	9	6			3	2
	D		3	8	4											
Turkey (see table below)																
Union of Socialist Soviet Republics (see table below).																
Union of South Africa.																
Cape Province	C	P	P	P	P	P	P	P	P	P		P	P			
Natal	C		P		P	P					P	P	P			
Orange Free State	C	P	P	P	P	P	P	P				P	P			
Transvaal	C	P	P							P						
Venezuela: Caracas (see table below).																
Yugoslavia (see table below)																

Place		January, 1932	February, 1932	March, 1932	April, 1932	May, 1932	June, 1932
Chosen: Seoul	C		5	4			
	D		1				
Czechoslovakia	C	1			1	5	
Greece	C	4	4	7	1		4
Guatemala	C	18	2	42	5		19
	D	3		3		8	3
Lithuania	C	21	10	32	25	13	16
	D	3	3	3	5	1	

Place		January, 1932	February, 1932	March, 1932	April, 1932	May, 1932	June, 1932
Turkey	C	14	22	6	1		
	D	3	1	3			
Union of Socialist Soviet Republics	C	8,670	9,017	9.765			
Venezuela Caracas	D	2					
Yugoslavia	C	11	26	5	29	34	
	D		2	1		6	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

YELLOW FEVER

[C indicates cases; D, deaths; P, present]

Place		Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Apr. 3–30, 1932	Week ended— May, 1932: 7	May 14	May 21	May 28	June, 1932: 4	June 11	June 18	June 25	July, 1932: 2	July 9	July 16
Bolivia [1]															
Brazil:															
Bahia State—Esplanada	C				P										
Ceara State	C			1											
	D			1											
Espirito Santo State	C		2	1											
	D		2	1											
Santa Teresa (about 56 miles from Victoria)	D	1													
Parahyba State	C											1			
	D											1			
Pernambuco State	D			1									1		
Dahomey: Porto Novo	C		1												
	D		1												
Gold Coast:															
Avudua	C		1	1											
Cape Coast	C		P												
Tamale	C		1												
Yapei	C	1													
Nigeria	C							1							
Upper Volta	C														1
	D														1

[1] Indirect reports show cases suspected to have been yellow fever in southern Bolivia during April, 1932.

UNITED STATES TREASURY DEPARTMENT

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ISSUED WEEKLY

BY THE UNITED STATES PUBLIC HEALTH SERVICE

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HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

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CONTENTS

PUBLIC HEALTH REPORTS

VOL. 47 AUGUST 26, 1932 NO. 35

NOTE ON EXPERIMENTAL INFECTION OF ANOPHELES PUNCTIPENNIS WITH QUARTAN MALARIA

By Bruce Mayne, *special expert, United States Public Health Service*

During the course of experiments to perfect a method of providing malarial infection for the inoculation of paretics, we were continually faced with the problem of infecting Negroes. They proved almost completely refractory to benign tertian, but developed severe attacks of malaria after direct blood inoculation with quartan malaria. For this reason the ease or difficulty of infecting *Anopheles* with *Plasmodium malariae* becomes a matter of importance.

In May of this year (1932), a good quartan carrier was found at the United States marine hospital, New Orleans, La., and an attempt was made to infect mosquitoes. The carrier, a chronic case suffering from an acute relapse, had many gametocytes of both sexes at the rate of 6 per 100 leucocytes. All mosquitoes were laboratory bred and had been kept for two weeks at 66° F. and 90 per cent relative humidity. Ten to fifteen mosquitoes were kept in each cage; the cages rested on moist pads. All mosquitoes were fed on raisins at all feedings except the infective feeding on the patient. The mosquitoes were transported in a portable ice box 747 miles (24-hour trip), fed on the carrier, and retransported the same distance back to the laboratory. There they were kept at 72° F. and 84 per cent relative humidity.

In all, 78 mosquitoes were fed on the quartan carrier, 72 being *Anopheles punctipennis* and 6 *Anopheles crucians*.

The mosquitoes dying were dissected; the first death occurred 7 days after feeding. Dissections of 1 or more mosquitoes a day were continued at intervals of a few days each, until 40 days after the infective feeding, when the last 6 mosquitoes were sacrificed for dissection.

RESULTS

On the fifteenth day the first positive quartan infection was found, the infected mosquito showing a heavy pigmented form on the gut wall, about 7 microns in diameter, pigment rough and granular. The mosquito's salivary glands were negative. On the twenty-first day another positive was found. This mosquito had one matured oocyst measuring 59.4 microns with comparatively heavy walls, and another, 44 by 50.6 microns, both filled with sporozoites. Absence of pigment

was noted. The salivary glands were negative. The third and last positive was picked up on the twenty-fifth day after feeding. The gut was negative, but scanty sporozoites were found in the salivary glands and about 200 were counted. They measured uniformly 13.2 microns. These sporozoites were counted in the glands and dissecting fluid. All of these infections were in *Anopheles punctipennis.*

After the first lot of mosquitoes had been fed on the carrier he was given quinine, commencing on the afternoon of May 14. Between 8 and 11.30 o'clock the next morning (May 15) 29 mosquitoes, (25 *punctipennis* and 4 *crucians*,) were fed on the carrier. Out of this lot one positive was found in a mosquito dying four days after feeding. In this was seen a scanty number of pigmented forms, about one-half the size of a red blood cell.

During the course of this study nine paretics were bitten by mosquitoes which had previously fed upon a quartan carrier. Of these 9, 1 was bitten by 30 mosquitoes, 3 were bitten by 18 to 20 mosquitoes, and 5 were bitten by 5 or 6 mosquitoes each, 80 mosquitoes in all being used. Subsequent to being fed on the paretics these mosquitoes were all dissected and searched for signs of infection with quartan malaria, but, unfortunately, none of them was among the infected group.

Two other mosquito infection tests have been made. In the first test the patient was inoculated with blood from a quartan carrier, and 39 days later showed a few plasmodia in the circulating blood. Twelve days later there were, on the average, 22 gametocytes per 100 leucocytes. At this time 39 laboratory-bred mosquitoes (23 *quadrimaculatus* and 16 *punctipennis*) were fed upon the carrier. Subsequent dissections revealed no signs of infection.

In the second test a patient was inoculated intravenously with 5 c c of defibrinated blood from an active quartan case. Twenty-six days later the patient had the first chill, 2 days after which a few plasmodia were found in the peripheral circulation, and 6 days later gametocytes averaged 35 per 100 leucocytes. A blood slide kept in a moist chamber before staining showed free gametes and many gametocytes. On this day mosquito feedings were begun and from 2 to 35 mosquitoes were fed daily for two weeks, using a total of 86 mosquitoes (*punctipennis*, 69; *quadrimaculatus*, 16; *crucians*, 1).

Subsequently, the mosquito dissections were made at intervals of a few days, and only two positives were found, these being found on the fifth and sixth days, respectively, after feeding. Both were *Anopheles punctipennis*, laboratory bred. Both mosquitoes showed pigmented oocysts; in one mosquito, 1 oocyst 15.4 microns in diameter, and in the other, 2 oocysts of the same size, and one only 11 microns in diameter.

Although infection is proved only for one species, *punctipennis*, the number was too small to prove the other species negative. It is cer-

tain that, under the conditions of these tests, infection is not easy in any of our three major species of *Anopheles*, only 3 per cent of over 200 being infected with *Plasmodium malariae*.

TABULAR SUMMARY

Infection experiments

Gametocytes	Number of mosquitoes fed	Number of mosquitoes infected
6 per 100 leucocytes	49	3
6 per 100 leucocytes	29	1
35 per 100 leucocytes	86	2
22 per 100 leucocytes	39	0
Total	203	[1]6

[1] Nearly 3 per cent.

Mosquito species

A. punctipennis		*A. quadrimaculatus*		*A. crucians*	
Number fed	Number infected with *P. malariae*	Number fed	Number infected with *P. malariae*	Number fed	Number infected with *P malariae*
157	6	39	0	7	0

ACKNOWLEDGMENTS

Grateful acknowledgment is here made for the cooperation received in the South Carolina State Hospital from Dr. C. F. Williams, superintendent, and Dr. E. L. Horger, medical director, and to Surgeon T. B. H. Anderson, medical officer in charge of the United States marine hospital at New Orleans, and his assistants, and to Mr. Hans E. Hingst, who did many of the dissections herein reported and who reared most of the mosquitoes.

DEATH RATES IN A LARGE GROUP OF INSURED PERSONS

Rates for Principal Causes of Death for June and First Half of 1932

The accompanying tables are taken from the Statistical Bulletin for July, 1932, issued by the Metropolitan Life Insurance Co. They present the mortality record of many millions of insured persons of the industrial insurance department of the company for June, 1932, as compared with that for the preceding month and for June, 1931, and they also give the cumulative death rates for the first six months, the total rates in the first table for the years 1931 and 1932, and the rates by white and colored policyholders in the second, for the three years 1930, 1931, and 1932.

The annual general death rate for this group during the past few years has averaged about 72 per cent of the death rate for the registration area of the United States.

The Bulletin states:

The health record for June among the industrial policyholders was less favorable than for the corresponding month of last year and two years ago. The death rate was 8.8 per thousand, as compared with 8.5 for May, 1932, and 8.4 for June, 1931. It must not be inferred, however, that deaths occurred in June at an above-average rate over a period of years. The fact is that the June, 1932, rate was merely the highest among those for a short series of remarkably low June figures, beginning with 1929. Prior to 1929 the mortality rate for these policyholders was higher every June than in 1932.

Death rates (annual basis) per 100,000 for principal causes of death

[Industrial department, Metropolitan Life Insurance Co.]

Cause of death	Annual rate per 100,000 lives exposed [1]				
	June, 1932	May, 1932	June, 1931	Cumulative, January to June	
				1932	1931
Total, all causes	884.2	848.0	836.9	919.9	954.4
Typhoid fever	1.9	1.0	1.9	1.2	1.2
Measles	2.2	3.2	5.5	2.8	4.6
Scarlet fever	2.9	4.3	3.7	3.9	4.0
Whooping cough	3.2	3.0	3.3	3.7	3.7
Diphtheria	2.4	3.0	3.3	4.5	4.7
Influenza	9.8	18.7	8.9	26.0	34.9
Tuberculosis (all forms)	79.1	71.4	78.0	75.3	81.9
Tuberculosis of respiratory system	68.6	63.4	68.1	66.4	72.4
Cancer	96.3	86.5	81.4	91.2	83.8
Diabetes mellitus	23.4	22.6	19.5	24.4	22.7
Cerebral hemorrhage	65.6	62.3	59.2	67.0	65.6
Organic diseases of heart	160.2	157.4	139.6	166.7	163.0
Pneumonia (all forms)	55.0	69.6	53.3	85.1	104.8
Other respiratory diseases	9.7	9.3	8.9	10.7	12.8
Diarrhea and enteritis	9.6	7.4	10.8	8.3	10.9
Bright's disease (chronic nephritis)	69.6	65.5	66.0	72.6	71.0
Puerperal state	9.9	9.8	11.4	11.0	12.0
Suicides	12.9	11.4	10.8	11.9	9.9
Homicides	6.6	5.3	6.2	6.3	6.7
Other external causes (excluding suicides and homicides)	63.0	47.7	65.4	51.9	55.1
Traumatism by automobiles	20.2	16.2	23.0	18.0	19.8
All other causes	200.9	188.6	199.7	196.1	202.4

[1] All figures in this table include insured infants under 1 year of age. The rates for 1932 are subject to slight correction, since they are based on provisional estimates of lives exposed to risk.

FIRST HALF OF 1932

The cumulative death rate for these industrial policyholders for the first half of 1932 is 9.2 per 1,000, as compared with the previous low figure of 9.4 for the first six months of 1930, and with 9.5 for the corresponding period of 1931.

The death rates for diphtheria, tuberculosis, pneumonia, diarrheal diseases, and puerperal conditions are the lowest recorded for this group of persons for any previous corresponding period. Judging from past experience, the prediction is made by the statisticians of the company that the tuberculosis death rate for these insured persons for the year 1932 will probably reach approximately 70 per 100,000, which would be a reduction of almost one-half in the rate since 1920, when it was 137.9 per 100,000.

It is stated that the greatest single factor in bringing the gross death rate for the first half-year period to a new minimum was an 18.8 per

cent drop in mortality from pneumonia as compared with 1931, a decrease associated with a lower death rate for influenza.

For the 6-month period there were slight rises in the death rates for heart diseases, cerebral hemorrhage, and chronic nephritis, as compared with the first half of last year, due almost entirely, it is said, to increases in the last month of the period.

The cancer death rate shows a material increase this year, following the rise during 1931. This increase has occurred during a period when health conditions generally have been extremely favorable.

The diabetes death rate also increased during the first half of 1932, following a sharp rise in 1931. The death rate for this cause has shown a continuous increase in this group since 1924.

The suicide rate increased from 9.9 per 100,000 in 1931 to 11.2 in 1932, while automobile fatalities, for the first time in the records of the company, showed a decrease from the rate for the corresponding 6-month period of the preceding year.

Death rates (annual basis) per 100,000 for principal causes of death, by white and colored policyholders, first six months of the years 1930, 1931, and 1932

[Industrial department, Metropolitan Life Insurance Co.]

Cause of death	Death rates per 100,000 persons exposed [1]					
	White			Colored		
	January-June, 1932	January-June, 1931	January-June, 1930	January-June, 1932	January-June, 1931	January-June, 1930
All causes of death	845.6	861.3	843.1	1,497.5	1,677.6	1,618.1
Typhoid fever	1.1	1.1	1.1	2.3	2.6	2.7
Measles	3.0	5.2	5.0	1.3	2.8	2.8
Scarlet fever	4.2	4.3	3.7	1.5	1.8	1.1
Whooping cough	8.6	8.7	4.6	4.3	3.8	4.8
Diphtheria	4.8	5.0	7.7	2.3	2.4	8.5
Influenza	22.6	28.1	17.1	52.6	81.3	53.1
Meningococcus meningitis	1.4	2.5	3.7	1.9	9.1	12.5
Tuberculosis (all forms)	59.3	62.3	67.5	199.6	234.1	227.1
Tuberculosis of respiratory system	52.1	55.0	58.3	177.3	207.7	198.2
Tuberculosis of the meninges, etc	3.0	3.1	4.1	5.0	5.9	7.0
Other forms of tuberculosis	4.2	4.2	5.1	17.3	20.6	21.9
Cancer	90.3	82.6	76.9	98.2	88.8	77.8
Diabetes	24.0	22.2	19.4	27.1	26.5	22.6
Alcoholism	2.7	3.0	2.9	3.7	3.8	5.2
Cerebral hemorrhage—apoplexy	58.8	56.5	54.2	130.4	135.8	128.6
Organic diseases of the heart	155.6	148.8	142.7	253.3	273.9	274.1
Total respiratory diseases	87.5	105.5	104.5	160.4	207.1	196.8
Bronchitis	2.8	3.6	3.9	4.5	4.8	5.2
Broncho-pneumonia	30.9	39.6	38.4	40.1	56.0	55.2
Pneumonia (lobar and undefined)	46.6	54.4	53.9	104.2	133.1	124.7
Other diseases of respiratory system	7.2	8.0	8.2	11.6	13.1	11.7
Diarrhea and enteritis	8.5	10.0	12.5	7.4	12.1	13.7
Under 2 years	6.5	7.8	9.7	3.0	5.0	7.4
2 years and over	2.0	2.1	2.7	4.4	7.1	6.2
Acute nephritis	3.2	3.8	3.4	9.9	13.1	15.3
Chronic nephritis	64.1	62.7	62.7	138.1	143.3	140.7
Total puerperal state	10.3	11.1	12.3	16.2	18.3	19.2
Total external causes	66.4	67.6	69.3	92.8	102.6	109.1
Suicides	11.6	10.4	10.1	7.9	6.1	7.2
Homicides	3.2	3.7	3.2	30.3	29.8	28.8
Accidental and unspecified violence	51.6	53.6	56.0	54.6	66.7	73.1
Automobile accidents	17.9	18.9	18.4	18.4	22.2	18.2
All other and ill-defined causes of death	174.1	175.4	171.8	294.2	314.4	307.5

[1] All figures in this table include insured infants under 1 year of age. The rates for 1932 are subject to slight correction, since they are based on provisional estimates of lives exposed to risk.

COMPARATIVE CURRENT STATE MORTALITY STATISTICS[1]

The present report on mortality from certain causes covers, for a majority of the States included, the months January to March, 1932. For some of the States the data for all of these months are not available. The present plan is to publish about three current reports during the year, covering periods of approximately 3 months, 6 months, and 9 months, respectively, with a more complete annual summary of death rates for the calendar year at as early a date as possible in the following year. It is impossible to present data for all of the States on this basis of 3, 6, and 9 months, but each State is included in each report for as many months as possible with rates in each case for the "year to date" and comparative rates for the same period in preceding years. This arrangement makes it possible to compare the mortality of the current calendar year with the mortality of preceding years in the same State.

The rates are computed from current and generally preliminary reports furnished by State departments of health. Because of (*a*) some lack of uniformity in the method of classifying deaths according to cause, (*b*) some delayed death certificates, and (*c*) various other reasons, these preliminary rates can not be expected to agree in all instances with final rates published by the Bureau of the Census, which are based on a complete review and retabulation of the individual death certificates from each State. The preliminary rates given in the accompanying table are intended to serve only as a current index of mortality until final figures are issued by the Bureau of the Census.

Populations used in computing rates are estimates as of July 1 of each year, based on the 1920 and 1930 censuses.

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[1] From the Office of Statistical Investigations, United States Public Health Service.

Death rates from certain causes in stated periods of 1932, with comparative data for corresponding periods in preceding years

State	Period	Year	Rate per 1,000 population, all causes (annual basis)	Rate per 1,000 live births: Infant mortality	Rate per 1,000 live births: All except malformations and early infancy	Rate per 1,000 live births: Maternal mortality (143-150)	Typhoid fever (1)	Measles (7)	Scarlet fever (8)	Whooping cough (9)	Diphtheria (10)	Influenza (11)	Poliomyelitis (22)	Lethargic encephalitis (23)	Meningococcus meningitis (24)	Tuberculosis, all forms (31-37)	Cancer, all forms (43-49)	Diabetes (57)	Diseases of the nervous system (70-86)	Cerebral hemorrhage, apoplexy (74)	Diseases of the circulatory system (87-96)	Diseases of the heart (87-90)	Diseases of the respiratory system (97-107)	Pneumonia, all forms (100-101)	Diseases of the digestive system (108-127)	Diarrhea and enteritis under 2 years (113)	Nephritis (128, 129)
							Rates per 100,000 population (annual basis)																				
20 States *	Jan. to Mar.	1932	11.7	61	----	6.4	2.0	2.1	2.9	5.0	4.7	42.5	0.4	0.8	1.9	66.4	100.0	24.4	112.6	87.6	280.8	243.5	130.3	116.4	61.0	5.7	88.1
		1931	12.6	74	----	7.0	1.5	3.4	2.8	3.2	3.7	60.8	.4	1.0	3.3	71.0	99.8	23.0	116.7	88.6	287.0	249.4	167.4	151.4	65.5	7.3	89.1
		1930	12.2	71	----	8.0	1.6	4.3	2.6	4.8	5.5	32.5	.4	1.0	5.1	70.1	96.8	21.9	116.4	86.9	277.7	238.0	146.1	130.3	67.4	8.7	93.6
Alabama	do	1932	10.0	66	44	7.6	4.7	.7	1.6	5.5	5.8	46.2	(1)	.3	.9	75.1	52.3	8.1	88.9	58.8	124.9	116.1	108.1	101.5	49.3	4.9	76.0
		1931	11.4	74	49	8.1	1.5	12.2	1.8	3.2	5.3	85.7	.6	1.1	5.7	79.3	50.3	11.5	93.8	61.0	127.4	117.9	159.4	142.3	53.8	5.3	95.2
		1930	11.4	78	47	8.3	2.1	3.8	.9	8.4	5.5	66.7	.3	.6	2.3	82.1	45.4	10.1	97.1	61.2	147.1	135.2	137.1	126.4	53.5	7.5	94.8
		1929	15.0	100	68	7.7	1.7	3.9	1.7	9.0	6.3	388.6	1.1	1.7	2.2	82.5	41.1	9.9	94.5	54.7	140.4	131.2	177.2	168.0	86.6	5.7	87.0
California	do	1932	12.0	55	24	6.6	.8	1.2	1.1	1.2	3.4	19.7	.4	.6	2.1	89.8	122.2	23.6	118.4	87.9	321.4	284.6	109.5	93.1	58.9	4.9	94.8
		1931	12.3	61	30	6.4	1.0	2.7	1.6	2.2	2.5	26.8	.9	.8	4.0	99.7	121.7	21.8	116.9	82.9	316.0	281.7	115.2	99.9	71.2	6.3	87.9
		1930	12.4	56	27	6.3	1.4	4.3	2.5	2.4	4.4	15.1	.6	1.1	5.2	110.9	117.8	27.7	123.4	89.3	310.7	268.5	115.3	100.5	73.8	10.0	87.3
		1929	13.2	71	38	5.0	1.5	.5	1.9	5.2	2.9	49.6	.5	1.6	9.9	119.8	115.1	23.0	125.5	87.3	326.6	287.0	127.8	113.5	72.6	7.5	97.5
Connecticut	do	1932	11.8	56	(2)	7.3	.7	1.5	1.9	3.4	1.2	30.8	.2	1.0	1.2	58.9	111.8	31.0	(2)	(2)	(2)	254.3	(2)	111.5	(2)	3.6	100.9
		1931	11.5	66	(2)	(2)	(1)	4.7	1.0	2.2	1.2	47.6	(1)	.7	.7	57.0	106.3	30.0	(2)	(2)	(2)	223.6	(2)	124.7	(2)	5.7	93.2
		1930	12.8	82	(2)	(2)	.5	(1)	3.5	3.8	5.0	32.0	1.0	1.5	1.0	65.7	123.7	23.9	(2)	(2)	(2)	227.2	(2)	165.9	(2)	8.6	87.7
		1929	14.6	85	(2)	(2)	.3	5.4	1.8	4.6	3.6	127.4	(1)	2.0	2.0	72.5	113.9	20.9	(2)	(2)	(2)	237.2	(2)	216.0	(2)	8.9	85.0
Dist. of Col.	do	1932	17.3	61	28	5.9	.8	(1)	7.3	4.0	8.1	25.8	(1)	1.6	4.8	117.9	151.0	25.8	179.3	123.6	410.3	349.7	236.6	212.4	77.5	4.0	161.5
		1931	18.6	73	41	6.1	3.3	.8	1.6	.8	6.6	49.4	1.6	(1)	8.2	124.2	145.6	28.8	185.9	119.3	426.9	357.0	312.6	282.2	99.5	6.6	161.2
		1930	16.1	69	35	10.4	(1)	(1)	4.2	4.2	5.8	11.6	(1)	.8	.8	127.1	126.3	33.2	152.1	111.3	409.6	350.7	197.8	168.7	83.9	2.5	191.1
		1929	20.0	83	45	8.2	.8	(1)	2.5	7.6	12.6	71.3	(1)	(1)	2.5	142.6	135.0	32.7	167.8	109.0	502.7	428.0	319.7	288.7	107.4	5.9	207.3
Florida	do	1932	12.1	67	39	8.7	6.9	.8	.8	1.8	7.6	36.8	.3	(1)	(1)	69.3	79.5	20.3	126.8	107.7	216.8	202.6	90.4	74.7	94.7	14.5	118.3
		1931	14.0	73	37	10.6	6.1	3.2	.5	1.6	5.6	95.0	(1)	.8	.8	72.5	70.4	16.4	143.7	125.2	256.0	239.6	110.9	92.9	85.0	7.1	140.0
		1930	13.8	67	35	10.8	4.9	4.1	(1)	2.2	3.8	43.1	.5	.8	.5	73.2	82.0	16.7	151.4	127.5	238.1	215.3	114.6	90.8	97.1	18.9	133.0

* Alabama, California, District of Columbia, Florida, Georgia, Idaho, Indiana, Iowa, Louisiana, Maryland, Michigan, Minnesota, New Jersey, New York, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and Wisconsin.

1 No deaths. 2 Not available.

Death rates from certain causes in stated periods of 1932, with comparative data for corresponding periods in preceding years—Continued

				Rate per 1,000 live births			Rates per 100,000 population (annual basis)																				
State	Period	Year	Rate aper 1,000 population, all cuses (annual basis)	Infant mortality	All except malformations and early infancy	Maternal mortality (143–150)	Typhoid fever (1)	Measles (7)	Scarlet fever (8)	Whooping cough (9)	Diphtheria (10)	Influenza (11)	Poliomyelitis (22)	Lethargic encephalitis (23)	Meningococcus meningitis (24)	Tuberculosis, all forms (31–37)	Cancer, all forms (43–49)	Diabetes (57)	Diseases of the nervous system (70–86)	Cerebral hemorrhage, apoplexy (74)	Diseases of the circulatory system (87–96)	Diseases of the heart (87–90)	Diseases of the respiratory system (97–107)	Pneumonia, all forms (100–101)	Diseases of the digestive system (108–127)	Diarrhea and enteritis under 2 years (113)	Nephritis (128, 129)
Georgia	Jan. to Mar.	1932	10.5	78	(2)	9.1	7.9	(1)	1.0	3 0	4.7	45.7	.8	.3	1.7	62.9	48.4	12.2	116.5	81.2	135.1	124.2	123.7	115.1	55.5	8.0	110.3
		1931	11.4	83	(2)	11.5	4.3	2.9	1.7	3 2	4.2	99 4	.3	.4	3.2	72.1	47.1	10.0	118.2	(2)	148.4	136.7	144.1	135.2	49.3	4.2	108.4
		1930	11.7	85	(2)	10.0	3.2	6.1	1 0	7.5	4.8	65 9	1.5	.3	4.9	76.1	45.8	11.2	125.3	(2)	151.9	138.7	147.3	133.9	54.5	5.9	139.9
		1929	13.1	(2)	(2)	(2)	2.5	2.0	1.3	4.9	4.3	277.0	(2)	(2)	(2)	70.7	43.6	11.7	(2)	(2)	(2)	113.1	(2)	133.5	(2)	6.0	137.4
Hawaii	do	1932	10.5	92	(2)	(2)	(1)	22.7	1.1	(1)	4.3	6.5	(1)	(1)	4.3	104.9	72.5	13.0	(2)	48.7	(2)	86.5	(2)	128.7	135.2	67.1	67.1
		1931	10 6	76	(2)	(2)	5 3	11.6	(1)	(1)	8.5	8.5	(1)	(1)	1.1	104 8	46.6	14.8	(2)	59.3	(2)	131.3	(2)	122.8	111.2	50.8	76.2
		1930	12.1	100	(2)	(2)	3 4	7.9	(1)	9.1	17.0	14.7	(1)	(1)	10.2	104.2	52.1	12.5	(2)	48.7	(2)	148.4	(2)	131.4	182.4	111.0	85.9
		1929	14.2	116	(2)	(2)	5.8	3.5	(1)	36.0	9.3	25.6	(1)	(1)	33.7	96.5	65.1	9.3	(2)	56.9	(2)	131.3	(2)	183.6	206.8	131.3	(2)
Idaho	do	1932	9.7	75	48	8.6	2.7	(1)	(1)	(1)	3.6	28.7	(1)	1.8	2.7	36.8	56.6	13.5	114.0	85.3	209.2	175.1	124.8	112.2	45.8	3.6	51.2
		1931	10.6	70	42	4.6	.9	1.8	2.7	10.9	.9	19.1	.9	1.8	10.0	29.9	69.0	13.6	132.5	104.3	198.7	176.9	138.8	127.9	66.2	2.7	46.3
		1930	9.8	59	30	5.5	1.8	3.6	3.6	.9	3.6	9.1	(1)	(1)	12.7	34.5	58.2	4.5	108.2	63.6	197.2	180.0	145.4	120.9	53.6	1.8	35.5
Illinois	do	1932	11.6	59	27	5.8	1.1	.5	5.0	5.1	4.1	40.3	.7	.7	2.9	58.1	115.0	31.1	106.0	79.1	270.5	250.5	120.1	103.3	69.4	4.2	119.8
		1931	(2)	(2)	(2)	(2)	.7	8.4	7.3	2.2	6.0	57.0	.5	.5	4.0	62.9	(2)	(2)	(2)	(2)	(2)	(2)	(2)	133.3	(2)	(2)	(2)
		1930	(2)	(2)	(2)	(2)	.8	1.4	7.0	2.4	9.6	22.0	.2	.6	3.9	63.1	(2)	(2)	(2)	(2)	(2)	(2)	(2)	101.6	(2)	(2)	(2)
		1929	(2)	(2)	(2)	(2)	1.1	4.5	5.3	2.6	8.7	110.0	.1	1.1	6.0	82.1	(2)	(2)	(2)	(2)	(2)	(2)	(2)	148.7	(2)	(2)	(2)
Indiana	do	1932	12.6	58	29	5.7	1.0	.6	3.6	9.2	6.4	67.6	(1)	.6	8.0	62.3	106.9	18.5	(2)	125.8	(2)	193.7	(2)	135.1	(2)	4.4	72.4
		1931	13.2	72	41	7.0	1.4	7.8	5.7	4.7	4.8	80.3	.2	.7	8.2	59.0	103.9	17.1	(2)	122.2	(2)	183.0	(2)	163.9	(2)	5.7	79.2
		1930	12.7	59	28	6.5	1.3	1.8	3.3	4.7	5.3	30.7	.3	.8	17.3	72.6	104.1	19.1	(2)	121.9	(2)	199.8	(2)	130.4	(2)	6.8	89.2
		1929	15.0	83	(2)	7.9	.8	6.1	5.4	6.5	5.1	179.6	.4	(1)	.8	77.6	95.7	17.1	(2)	127.3	(2)	223.0	(2)	191.7	(2)	8.9	88.3
Iowa	do	1932	11.3	55	26	3.6	.8	.3	2.4	2.3	2.3	61.3	1.9	1.6	1.3	27.3	112.1	18.1	155.3	120.5	267.6	216.3	146.1	117.8	59.9	1.9	49.8
		1931	11.3	69	35	6.1	.7	.2	2.6	2.6	1.5	59.4	.2	3.1	4.7	31.9	115.6	25.8	130.3	110.1	256.9	232.5	130.8	119.5	64.6	3.8	39.7
		1930	11.4	68	30	7.5	1.1	11.5	4.9	5.4	3.1	48.4	.2	2.3	2.0	38.3	107.9	25.5	146.3	98.0	272.1	194.0	137.5	125.0	68.3	3.3	44.0
		1929	12.4	68	29	7.7	1.0	1.2	3.1	4.9	.2	156.7	1.2	2.1	3.0	35.7	107.3	20.9	148.8	104.9	285.6	252.6	124.6	108.5	60.7	3.3	56.1
Kansas	do	1932	10.7	51	20	7.5	1.1	1.3	2.3	1.5	5.1	59.3	.2	1.1	2.1	32.5	105.9	24.9	129.1	108.4	214.3	191.7	85.0	75.9	61.4	3.6	106.5
		1931	10 8	71	40	11.7	.6	.4	1.7	2.1	2.4	67.6	1.1	.6	1.3	37.9	86.7	26.5	132.5	102.3	209.7	132.5	117.1	106.4	64.0	6.4	108.3
		1930	11.3	60	30	9.2	1.1	3.2	3 9	4.5	5.2	60.3	.4	(1)	4.3	40.9	90.7	24.3	138.5	105.1	225.8	198.8	106.0	93.3	63.8	5.4	103.6
		1929	12.4	81	49	7.1	1.5	1.5	5.6	6.3	8.2	140.4	.4	.4	4.1	53.7	92.3	24.5	159.0	128.3	211.5	185.2	124.4	108.3	66.[illegible]	8.4	101.0

Louisiana	do	1932	10.0	66	39	8.7	10.0	.6	.4	5.6	6.5	38.5	.2	.7	1.7	78.0	48.1	11.9	76.3	56.7	196.7	182.2	101.5	91.1	55.7	10.6	98.7
		1931	12.1	73	47	9.9	6.8	.6	.8	4.9	5.1	105.4	.8	.6	4.5	90.8	66.9	16.1	88.9	63.1	228.6	212.1	145.7	133.8	65.0	12.5	114.5
		1930	12.7	99	64	11.4	5.4	8.1	.6	5.6	5.6	79.3	1.0	1.0	6.4	88.2	59.8	16.6	95.9	66.0	240.2	224.8	159.6	144.3	70.0	13.1	119.6
		1929	13.9	82	57	10.1	4.3	5.1	.4	5.7	4.9	242.7	.6	.4	3.1	98.2	60.5	15.3	97.3	61.8	240.0	221.8	154.2	140.7	71.8	13.6	112.3
Maryland	do	1932	14.0	67	36	3.7	1.9	2.2	2.6	7.7	5.3	33.2	.2	.7	1.4	92.6	119.0	30.5	151.7	120.0	318.3	290.4	177.9	157.5	72.1	12.3	154.1
		1931	15.8	86	49	6.4	1.0	4.9	2.2	5.1	3.7	60.5	.5	2.0	2.0	102.9	119.6	27.2	163.7	132.8	348.0	319.3	260.2	241.9	72.0	12.5	152.4
		1930	14.1	69	38	4.1	2.0	.2	3.2	6.1	4.1	18.0	(1)	1.0	2.4	110.4	106.5	23.7	157.3	119.5	307.9	273.6	200.4	179.9	68.5	9.8	168.2
Michigan	do	1932	10.8	60	23	6.5	.6	2.2	3.7	3.9	3.5	43.3	.5	.5	2.0	50.7	92.7	25.3	121.6	92.2	266.2	240.8	107.2	92.0	66.0	4.6	64.7
		1931	11.0	69	33	6.9	.7	.8	4.3	4.3	4.2	37.1	.3	.8	3.8	58.6	90.2	21.0	125.7	94.5	255.7	228.6	119.6	103.1	69.4	5.8	65.9
		1930	11.6	76	36	7.2	.8	6.3	3.8	3.8	8.7	20.3	.5	1.5	13.9	61.3	88.5	19.4	131.5	100.5	251.4	221.9	137.4	114.8	73.8	8.2	67.0
		1929	13.9	85	47	7.1	.9	2.5	4.9	6.2	10.7	115.3	.8	1.2	15.9	72.3	94.4	31.5	151.2	107.6	289.5	254.3	180.0	157.3	83.3	12.7	74.9
Minnesota	do	1932	10.2	47	16	3.9	.2	(1)	2.9	1.7	.6	51.1	.2	.6	1.1	40.0	117.6	22.1	107.6	84.8	238.2	215.4	100.2	90.9	59.4	1.7	61.4
		1931	10.7	61	26	5.0	.3	.5	1.3	2.2	1.3	49.1	.5	1.1	1.4	40.1	121.7	24.5	108.5	83.2	222.6	197.4	129.3	119.9	70.2	4.1	56.1
		1930	10.4	47	20	5.2	.9	7.9	2.8	4.4	1.6	27.9	.2	1.7	3.5	50.5	116.6	19.7	109.3	87.4	202.7	187.7	103.8	102.7	65.9	6.0	56.8
		1929	11.9	65	31	5.5	.2	4.8	4.4	7.1	2.7	119.8	.3	2.9	2.2	58.0	112.9	24.9	116.6	86.4	231.8	186.2	118.2	110.1	65.4	4.1	67.8
Mississippi	do	1932	9.4	(2)	(2)	(2)	2.9	(1)	.4	5.1	7.2	42.4	.8	(1)	1.6	74.2	45.9	6.8	(2)	72.6	(2)	87.3	(2)	76.9	(2)	4.9	76.5
		1931	11.4	(2)	(2)	(2)	3.0	.2	.2	2.2	6.6	93.3	.2	.2	3.0	79.6	47.6	9.4	(2)	74.8	(2)	111.6	(2)	116.2	(2)	5.0	92.7
		1930	11.9	(2)	(2)	(2)	3.8	2.2	.8	7.3	5.6	65.1	.8	(1)	16.7	80.8	43.3	11.3	(2)	78.0	(2)	108.6	(2)	113.4	(2)	5.8	93.9
		1929	15.1	(2)	(2)	(2)	4.9	10.8	(1)	9.8	4.3	362.8	.6	.4	.8	75.9	41.5	8.6	(2)	68.6	(2)	95.1	(2)	123.4	(2)	4.3	97.3
Nebraska	Jan. to Feb.	1932	10.1	39	14	4.9	3.1	(1)	4.8	2.2	1.3	64.2	.4	.9	1.3	26.2	96.9	28.8	122.7	101.7	219.6	196.1	95.2	84.7	65.5	4.8	85.2
		1931	10.8	61	33	6.4	.4	(1)	2.7	1.3	4.4	45.5	1.3	.9	4.9	21.8	106.1	25.4	139.5	114.5	212.2	183.2	119.4	109.2	65.5	5.3	75.3
		1930	10.3	48	21	4.8	1.3	9.9	3.6	4.9	2.2	35.8	.4	.9	5.4	27.3	110.7	26.4	120.1	96.8	212.9	190.1	115.7	104.5	72.1	5.4	51.1
		1929	12.4	50	48	7.6	2.3	.9	7.7	2.7	5.4	171.2	(1)	1.4	4.1	35.6	83.4	22.5	130.7	100.9	222.6	200.5	138.3	120.8	78.9	7.2	64.0
New Jersey	Jan. to Mar.	1932	10.9	50	(2)	5.7	.5	.7	1.3	5.3	2.7	28.5	.3	.8	.9	62.6	100.3	27.5	109.0	84.0	291.0	259.4	120.4	99.3	59.5	4.9	103.8
		1931	12.4	72	(2)	5.9	.7	4.3	3.6	3.1	5.6	39.0	.2	1.1	2.3	71.7	110.7	27.9	118.3	88.4	310.4	280.2	164.1	149.4	67.0	8.1	107.1
		1930	11.7	70	(2)	5.8	.6	3.5	2.4	3.2	12.9	15.9	.1	.8	2.6	69.4	100.2	26.1	116.4	86.3	285.5	260.2	142.5	128.9	69.1	8.5	107.0
		1929	14.3	78	(2)	5.6	.6	1.6	1.3	8.5	14.1	80.6	.4	1.7	2.7	78.8	106.7	26.9	132.2	97.7	334.7	309.5	237.2	215.8	71.4	9.2	117.3
New York	do	1932	12.7	57	25	6.6	.6	2.0	4.4	2.3	3.3	23.5	.2	.9	1.8	71.7	125.5	34.3	81.0	55.4	391.5	331.5	163.0	150.2	68.1	5.6	85.0
		1931	13.7	74	38	7.1	.3	1.2	2.4	3.9	2.8	38.8	.3	1.1	1.8	71.6	127.5	31.5	88.1	58.4	399.5	340.2	212.2	196.8	69.1	7.3	82.9
		1930	12.7	67	32	5.6	.8	1.1	1.5	2.4	4.2	13.6	.3	.4	3.0	73.5	122.0	29.4	84.5	53.3	379.3	311.7	159.9	147.1	70.5	9.1	88.3
		1929	15.7	79	40	6.0	.6	2.4	2.7	4.5	7.3	87.1	.5	1.4	7.1	83.5	122.8	32.0	105.7	70.0	441.1	369.5	235.5	242.3	73.1	10.2	89.4
North Carolina	do	1932	9.5	74	(2)	8.1	3.8	.7	1.5	6.2	5.1	24.7	.2	1.0	.9	66.0	44.1	10.8	(2)	(2)	(2)	(2)	(2)	123.1	(2)	8.3	(2)
		1931	11.5	89	(2)	8.3	1.5	2.1	2.7	4.1	7.2	86.0	.2	.4	.1	73.5	(2)	(2)	(2)	(2)	(2)	(2)	(2)	156.1	(2)	3.5	(2)
		1930	12.0	83	(2)	7.0	.8	.1	1.4	9.2	6.7	50.3	.4	.6	.9	84.5	(2)	(2)	(2)	(2)	(2)	(2)	(2)	156.5	(2)	6.2	(2)
		1929	13.9	(2)	(2)	(2)	2.1	1.3	1.7	7.1	10.0	241.4	.8	(1)	.3	85.0	(2)	(2)	(2)	(2)	(2)	(2)	(2)	154.0	(2)	7.7	(2)
Ohio	do	1932	12.4	60	25	5.8	1.1	2.8	4.5	7.2	5.5	58.2	.4	.8	1.1	63.8	112.8	28.8	143.4	120.8	303.7	268.0	124.8	114.7	55.2	3.5	85.0
		1931	12.9	74	37	7.1	1.1	2.5	4.6	2.1	2.4	68.7	.6	.9	1.8	66.9	106.4	22.3	146.7	120.5	243.4	257.7	157.4	143.7	63.3	5.9	85.9
		1930	12.4	62	27	7.0	1.8	4.9	3.3	3.5	4.3	33.1	.4	1.4	2.5	71.3	107.0	24.8	131.8	116.1	290.2	258.7	130.5	117.9	57.8	6.6	86.2
		1929	15.7	(2)	(2)	(2)	1.2	4.7	3.1	11.2	4.5	194.7	.6	(2)	2.7	77.1	105.5	(2)	(2)	130.4	(2)	271.8	(2)	174.9	(2)	7.1	101.0

[1] No deaths.

[2] Not available.

Death rates from certain causes in stated periods of 1932, with comparative data for corresponding periods in preceding years—Continued

State	Period	Year	Rate per 1,000 population, all causes (annual basis)	Rate per 1,000 live births: Infant mortality	Rate per 1,000 live births: All except malformations and early infancy	Rate per 1,000 live births: Maternal mortality (143-150)	Rates per 100,000 population (annual basis): Typhoid fever (1)	Measles (7)	Scarlet fever (8)	Whooping cough (9)	Diphtheria (10)	Influenza (11)	Poliomyelitis (22)	Lethargic encephalitis (23)	Meningococcus meningitis (24)
Pennsylvania	Jan. to Feb.	1932	12.3	61	31	6.7	1.5	4.7	3.8	5.5	6.3	52.6	.4	.8	1.8
		1931	13.3	81	47	6.2	.9	6.7	3.1	2.4	4.7	67.9	.2	1.3	2.7
		1930	12.8	87	51	6.6	.9	3.3	3.1	5.5	7.1	34.5	.3	.8	3.1
		1929	16.0	98	60	7.2	1.4	7.2	3.8	9.0	9.2	177.9	.6	1.4	2.6
South Carolina	do	1932	(2)	(2)	(2)	(2)	6.7	1.8	.2	7.4	3.7	61.6	1.1	1.8	1.8
		1931	(2)	(2)	(2)	(2)	2.6	3.9	.7	1.9	3.7	153.3	.7	2.1	2.8
		1930	(2)	(2)	(2)	(2)	5.6	.2	.5	12.9	6.3	74.6	.5	3.3	7.7
		1929	(2)	(2)	(2)	(2)	5.4	(1)	.5	7.0	6.6	236.4	.7	2.8	2.6
Tennessee	do	1932	10.8	72	46	7.5	5.4	.3	1.1	6.2	5.0	60.2	.2	.9	2.9
		1931	11.2	87	61	8.7	2.4	6.4	2.4	3.2	3.4	84.3	.6	.3	9.6
		1930	11.6	76	49	9.2	3.3	6.4	1.6	5.6	4.8	65.9	.9	.9	16.6
		1929	15.3	108	78	9.4	2.3	.3	3.0	7.0	5.5	341.6	.8	.3	2.0
Virginia	do	1932	11.7	72	(2)	7.0	3.5	.7	1.6	19.1	8.5	49.5	.7	.8	1.3
		1931	14.2	94	(2)	8.5	2.8	5.0	2.3	3.7	4.8	137.4	.3	.5	3.5
		1930	12.8	76	(2)	7.8	1.3	5.0	2.2	13.7	7.2	58.4	.8	1.7	4.5
		1929	15.9	101	(2)	7.7	1.5	2.5	1.5	12.3	7.4	314.0	.7	1.5	1.9
West Virginia	do	1932	10.2	(2)	(2)	5.4	5.1	16.3	3.4	15.7	11.9	65.4	.4	.4	1.6
		1931	10.6	(2)	(2)	5.0	6.0	2.5	2.5	6.2	4.8	88.1	.9	(1)	.5
		1930	10.3	(2)	(2)	6.1	5.4	6.1	2.1	18.7	5.6	47.5	.5	.5	1.2
		1929	13.9	(2)	(2)	6.7	8.5	5.0	1.9	15.9	4.5	306.6	.7	1.2	1.7
Wisconsin	do	1932	10.6	58	22	4.5	.3	.9	2.8	3.1	2.7	46.2	.8	1.2	1.1
		1931	11.4	67	(2)	5.2	.4	1.5	3.3	2.0	2.7	40.9	.1	1.5	2.0
		1930	11.0	68	(2)	5.2	.3	5.8	5.4	3.0	3.0	27.3	.3	1.1	3.0
		1929	12.7	78	(2)	(2)	1.3	2.2	3.5	3.1	2.6	130.8	.1	1.5	7.7

State	Period	Year	Tuberculosis, all forms (31-37)	Cancer, all forms (43-49)	Diabetes (57)	Diseases of the nervous system (70-86)	Cerebral hemorrhage, apoplexy (74)	Diseases of the circulatory system (87-96)	Diseases of the heart (87-90)	Diseases of the respiratory system (97-107)	Pneumonia, all forms (100-101)	Diseases of the digestive system (108-127)	Diarrhea and enteritis under 2 years (113)	Nephritis (128, 129)
Pennsylvania	Jan. to Feb.	1932	57.3	101.1	28.8	122.9	96.0	308.0	269.1	138.1	122.4	61.3	7.5	105.8
		1931	61.3	94.4	27.8	123.2	94.9	308.0	274.2	188.5	168.3	66.7	12.2	103.4
		1930	66.3	96.4	24.0	126.3	94.2	296.3	265.1	167.8	149.9	70.5	12.8	113.3
		1929	74.5	104.6	27.7	144.8	104.7	326.7	296.8	230.4	204.6	76.3	15.3	126.4
South Carolina	do	1932	57.9	34.7	9.2	(2)	(2)	240.0	(2)	(2)	133.2	(2)	(2)	115.1
		1931	69.5	40.2	9.1	(2)	(2)	270.4	(2)	(2)	163.1	(2)	(2)	117.8
		1930	70.2	34.6	8.0	(2)	(2)	313.7	(2)	(2)	152.5	(2)	(2)	106.4
		1929	74.6	37.3	9.6	(2)	(2)	303.5	(2)	(2)	142.4	(2)	(2)	92.4
Tennessee	do	1932	91.5	51.3	11.7	88.2	63.6	115.2	102.2	122.3	113.4	51.8	4.4	64.8
		1931	105.7	52.5	11.6	97.0	60.3	134.6	121.1	164.9	152.6	50.9	4.0	63.5
		1930	119.6	49.5	10.4	103.4	61.7	134.8	123.1	147.2	134.3	57.7	3.9	79.1
		1929	137.1	53.6	11.1	105.7	57.5	155.4	144.1	177.5	162.4	55.1	5.2	71.4
Virginia	do	1932	95.5	68.5	15.9	119.1	94.5	203.2	184.7	118.5	105.6	49.1	5.4	98.6
		1931	97.7	65.1	18.6	148.2	119.4	249.6	231.1	176.6	160.3	50.9	6.5	118.0
		1930	95.8	64.8	17.1	135.6	104.0	228.1	205.8	151.7	133.5	57.6	6.2	109.7
		1929	102.1	64.8	63.4	150.4	107.3	242.0	219.8	141.4	126.8	49.6	5.2	114.5
West Virginia	do	1932	57.3	58.9	15.0	113.7	82.8	128.0	115.5	125.1	113.9	51.3	7.8	71.6
		1931	59.4	55.8	13.3	91.8	65.9	149.9	121.6	174.9	163.2	51.9	7.8	54.6
		1930	74.3	51.7	12.6	89.5	59.6	160.6	125.3	132.3	121.8	57.5	13.1	59.4
		1929	76.4	59.8	11.2	96.3	55.3	192.4	123.4	183.7	148.5	56.7	13.8	61.5
Wisconsin	do	1932	49.4	112.0	26.1	(2)	93.4	(2)	234.0	(2)	97.7	(2)	5.2	72.0
		1931	51.9	116.3	(2)	(2)	(2)	(2)	(2)	(2)	119.6	(2)	7.1	(2)
		1930	52.2	117.1	(2)	(2)	(2)	(2)	(2)	(2)	107.3	(2)	8.0	(2)
		1929	52.8	102.8	(2)	(2)	(2)	(2)	(2)	(2)	125.8	(2)	13.1	(2)

[1] No deaths.

[2] Not available.

COURT DECISION RELATING TO PUBLIC HEALTH

Damages allowed for contraction of tuberculosis by person engaged in "sand blasting."—(Missouri Supreme Court; Dodd *v.* Independence Stove and Furnace Co., 51 S. W. (2d) 114; decided Apr. 8, 1932.) A statute of Missouri provided as follows:

> * * * In all processes of manufacture or labor referred to in this section which are productive of noxious or poisonous dusts, adequate and approved respirators shall be furnished and maintained by the employer in good condition and without cost to the employees, and such employees shall use such respirators at all times while engaged in any work productive of noxious or poisonous dusts.

In an action for damages brought against the defendant company by a former employee, the plaintiff alleged that he had contracted tuberculosis while in the defendant's employ. The claim was that the disease resulted from the inhalation of dust which was generated in the manufacturing process in which plaintiff was employed. This process was called "sand blasting" and was used to clean, smooth, and polish cast-iron parts for stoves and furnaces. In the process fine sand was projected with considerable force by compressed air through a hose against the surface to be cleaned. The work was carried on in a small room about 8 feet square maintained for the purpose. The plaintiff was furnished, and used, a "helmet" or "mask" as a protection from the sand and dust, but his evidence was to the effect that this device, even when in good condition, did not prevent the inhalation of dust. The plaintiff's cause of action was based upon defendant's alleged failure to furnish him with an adequate respirator as required by statute. Damages were awarded plaintiff in the trial court and, on appeal to the supreme court, the judgment was affirmed.

One of the points urged by the defendant on appeal was the refusal of the trial court to give a certain instruction relative to the construction of the statute involved. This instruction, in substance, was that the words "noxious dusts," as used in the statute, meant only such dusts as were inherently harmful by reason of the component elements therein and did not mean dust which may be harmful by reason of the amount thereof or the manner of the handling of the same. The trial court had defined noxious dust as dust which was hurtful or harmful to employees using the same. The supreme court refused to agree with defendant's contention as to the construction of the statute and held that the requested instruction had been properly refused.

DEATHS DURING WEEK ENDED AUGUST 8, 1932

Summary of information received by telegraph from industrial insurance companies for the week ended August 8, 1932, and corresponding week of 1931. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)

	Week ended Aug. 8, 1932	Corresponding week, 1931
Policies in force	71, 503, 898	75, 039, 929
Number of death claims	11, 858	11, 944
Death claims per 1,000 policies in force, annual rate	8. 7	8. 8
Death claims per 1,000 policies, first 31 weeks of year, annual rate	10. 0	10. 2

Deaths [1] from all causes in 85 large cities of the United States during the week ended August 8, 1932, infant mortality, annual death rate, and comparison with corresponding week of 1931. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)

[The rates are based upon mid-year population estimates derived from the 1930 census]

City	Week ended Aug. 8, 1932				Corresponding week, 1931		Death rate [2] for the first 31 weeks	
	Total deaths	Death rate [2]	Deaths under 1 year	Infant mortality rate [3]	Death rate [2]	Deaths under 1 year	1932	1931
Total	6, 268	8. 9	502	[4] 42	10. 4	649	11. 6	12. 5

[1] Deaths of nonresidents are included. Stillbirths are excluded.
[2] These rates represent annual rates per 1,000 population, as estimated for 1932 and 1931 by the arithmetical method.
[3] Deaths under 1 year of age per 1,000 estimated live births.
[4] Data for 81 cities.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended August 13, 1932, and August 15, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended August 13, 1932, and August 15, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Aug. 13, 1932	Week ended Aug. 15, 1931	Week ended Aug. 13, 1932	Week ended Aug 15, 1931	Week ended Aug. 13, 1932	Week ended Aug 15, 1931	Week ended Aug. 13, 1932	Week ended Aug. 15, 1931
New England States:								
Maine					9	1	0	2
New Hampshire					3		0	0
Vermont	2				12	6	0	0
Massachusetts	29	31	1	1	71	65	0	1
Rhode Island		2				21	0	0
Connecticut	4	13		1	14	23	1	0
Middle Atlantic States:								
New York	54	62	[1] 1	[1] 2	176	126	4	11
New Jersey	16	19	3	2	70	27	0	5
Pennsylvania	29	50			72	111	5	6
East North Central States:								
Ohio	31	21	10	10	55	105	2	6
Indiana	27	13	16		2	6	3	2
Illinois	34	41	4	2	34	67	7	4
Michigan	17	21			168	34	0	4
Wisconsin	6	10	13	12	35	40	0	0
West North Central States:								
Minnesota	7	14	1	1	8	5	1	1
Iowa	6	6			1	3	0	0
Missouri	15	15	2		3	3	1	1
North Dakota	7	4				10	0	1
South Dakota	2	2			1		0	0
Nebraska	3				3	3	1	0
Kansas	10	3	1		9	6	1	1
South Atlantic States:								
Delaware					1	1	0	0
Maryland [2] [3]	6	7	1	2	4	6	0	2
District of Columbia	3	7	1		1	4	0	1
Virginia [3]	22				17		1	
West Virginia	11	5	61		14	55	1	1
North Carolina	15	22	20	1	31	16	1	1
South Carolina	0	11	88	68	7	11	0	1
Georgia [3]	11	17	5	6		14	2	0
Florida [3]	14	8	4	1		1	0	0
East South Central States:								
Kentucky	25					11	2	1
Tennessee	9	14	6	13	5	4	1	4
Alabama [3]	28	16	1	8		17	0	0
Mississippi	21	11					0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended August 13, 1932, and August 15, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Aug. 13, 1932	Week ended Aug. 15, 1931	Week ended Aug. 13, 1932	Week ended Aug. 15, 1931	Week ended Aug. 13, 1932	Week ended Aug. 15, 1931	Week ended Aug. 13, 1932	Week ended Aug. 15, 1931
West South Central States:								
Arkansas	5	27	2	--------	--------	--------	0	2
Louisiana	17	12	10	5	11	1	0	0
Oklahoma [4]	22	6	16	5	--------	2	0	0
Texas [3]	53	18	22	6	7	4	0	0
Mountain States:								
Montana	--------	--------	4	--------	15	6	0	0
Idaho	--------	--------	--------	--------	--------	--------	0	0
Wyoming	1	1	--------	--------	4	--------	0	2
Colorado	7	9	--------	--------	2	--------	0	0
New Mexico	22	1	2	--------	1	1	1	0
Arizona	--------	--------	--------	4	6	2	0	0
Utah [2]	--------	--------	--------	6	--------	4	0	0
Pacific States:								
Washington	1	8	1	--------	8	8	0	1
Oregon	--------	2	4	8	10	4	0	0
California	24	36	53	12	84	53	2	8
Total	622	555	353	171	919	884	87	69

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Aug. 13, 1932	Week ended Aug. 15, 1931	Week ended Aug. 13, 1932	Week ended Aug. 15, 1931	Week ended Aug. 13, 1932	Week ended Aug. 15, 1931	Week ended Aug. 13, 1932	Week ended Aug. 15, 1931
New England States:								
Maine	3	2	16	4	0	0	4	1
New Hampshire	0	3	5	4	0	0	2	1
Vermont	0	5	4	12	0	2	0	0
Massachusetts	2	90	80	50	0	0	7	12
Rhode Island	0	18	5	3	0	0	0	7
Connecticut	0	67	11	12	0	0	4	6
Middle Atlantic States:								
New York	17	600	120	77	0	1	[5] 59	42
New Jersey	15	97	27	29	0	0	14	11
Pennsylvania	71	8	68	76	0	0	38	37
East North Central States:								
Ohio	7	9	111	75	3	2	64	38
Indiana	0	3	13	10	3	5	26	7
Illinois	6	26	94	54	1	7	79	27
Michigan	3	33	74	59	0	7	15	7
Wisconsin	1	24	6	16	0	2	4	1
West North Central States:								
Minnesota	5	29	21	19	0	0	1	3
Iowa	3	1	7	10	2	9	3	3
Missouri	1	0	13	8	2	1	20	8
North Dakota	0	0	1	1	5	2	4	23
South Dakota	0	1	0	0	0	0	0	1
Nebraska	1	0	6	2	1	0	3	7
Kansas	0	0	11	12	4	3	21	7
South Atlantic States:								
Delaware	0	0	2	4	0	0	2	3
Maryland [2, 3]	2	1	15	10	0	0	46	22
District of Columbia	0	1	6	1	0	0	3	1
Virginia [3]	1	--------	37	--------	0	--------	64	--------
West Virginia	2	2	6	7	0	0	46	32
North Carolina	2	10	27	29	0	0	44	50
South Carolina	1	0	3	5	0	0	56	70
Georgia [3]	0	1	2	4	0	2	55	69
Florida [3]	0	0	1	2	0	0	4	4
East South Central States:								
Kentucky	1	0	7	7	3	0	180	65
Tennessee	4	0	31	18	0	34	182	94
Alabama [3]	0	0	14	14	0	0	31	44
Mississippi	0	1	5	8	1	12	36	22

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended August 13, 1932, and August 15, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Aug. 13, 1932	Week ended Aug. 15, 1931	Week ended Aug. 13, 1932	Week ended Aug. 15, 1931	Week ended Aug. 13, 1932	Week ended Aug. 15, 1931	Week ended Aug. 13, 1932	Week ended Aug. 15, 1931
West South Central States:								
Arkansas	1	0	1	3	0	2	26	56
Louisiana	3	0	6	4	2	1	31	51
Oklahoma [4]	2	1	15	12	0	2	74	42
Texas [3]	0	1	23	12	4	1	47	43
Mountain States:								
Montana	0	1	12	12	8	2	3	8
Idaho	0	0	0	0	0	0	2	2
Wyoming	0	0	0	0	0	0	0	0
Colorado	1	0	5	2	0	0	8	18
New Mexico	0	0	3	4	0	1	15	6
Arizona	1	0	2	1	0	0	0	0
Utah [2]	0	0	2	2	0	0	0	2
Pacific States:								
Washington	1	3	14	5	4	5	7	4
Oregon	0	0	4	4	0	9	2	5
California	5	2	40	21	13	1	16	18
Total	162	1,040	976	724	56	113	1,243	965

[1] New York City only.
[2] Week ended Friday.
[3] Typhus fever, 35 cases; week ended Aug. 13, 1932, 2 cases in Maryland, 1 case in Virginia, 9 cases in Georgia, 2 cases in Florida, 1 case in Alabama, and 20 cases in Texas.
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa and for 1931 are exclusive of Tulsa only.
[5] Typhoid fever figures published for New York State for the weeks ended Apr. 30 to July 23, 1932, with the exception of the week ended June 18, are exclusive of New York City.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
June, 1932										
Mississippi	1	19	546	3,625	30	899	5	15	30	157
July, 1932										
Alabama	5	70	29	280	3	128	3	54	28	142
Arizona		2	4		6		0	8	5	10
Indiana	22	70	58		86		4	115	15	102
Maryland	1	21	6		42	1	2	63	0	63
Michigan	6	62	18	3	2,809		6	513	6	38
North Dakota	2	10	3		33		8	17	6	6
Tennessee	7	25	34	301	4	75	1	38	14	585
Vermont		2			210		0	29	2	4
Wyoming	1			1	29		2	9	0	0

June, 1932

Mississippi:	Cases
Chicken pox	199
Dengue	5
Dysentery (amebic)	57
Mumps	97
Ophthalmia neonatorum	8
Puerperal septicemia	24
Rabies in animals	14
Trachoma	7
Undulant fever	1
Whooping cough	685

July, 1932

	Cases
Actinomycosis	
North Dakota	2
Chicken pox	
Alabama	21
Arizona	4
Indiana	58
Maryland	60
Michigan	294
North Dakota	12
Tennessee	21
Vermont	52
Wyoming	2

Disease / State	Cases
Diarrhea:	
Maryland	139
Dysentery:	
Indiana (amebic)	1
Indiana (bacillary)	1
Maryland	37
Tennessee	108
German measles:	
Maryland	3
Tennessee	40
Impetigo contagiosa:	
Maryland	8
Tennessee	1
Lethargic encephalitis:	
Alabama	2
Maryland	4
Michigan	4
North Dakota	2
Mumps:	
Alabama	73
Arizona	3
Indiana	91
Maryland	183
Michigan	224
North Dakota	7
Tennessee	11
Vermont	215
Wyoming	5
Ophthalmia neonatorum:	
Tennessee	4
Paratyphoid fever:	
Tennessee	8
Puerperal septicemia:	
Tennessee	2
Rabies in animals:	
Maryland	1
Tennessee	19
Rocky Mountain spotted or tick fever:	
Maryland	5
Wyoming	8
Septic sore throat:	
Maryland	11
Michigan	8
Tennessee	1
Wyoming	2
Tetanus:	
Maryland	4
North Dakota	1
Trachoma:	
Arizona	6
Indiana	1
Tennessee	33
Tularæmia:	
Alabama	4
Tennessee	1
Wyoming	9
Typhus fever:	
Alabama	17
Maryland	4
Tennessee	1
Undulant fever:	
Alabama	4
Maryland	1
Michigan	6
Vermont	3
Vincent's angina:	
Maryland	11
Tennessee	17
Vincent's infection:	
North Dakota	19
Whooping cough:	
Alabama	175
Arizona	85
Indiana	335
Maryland	290
Michigan	1,010
North Dakota	6
Tennessee	214
Vermont	109
Wyoming	8

PLAGUE-INFECTED GROUND SQUIRRELS IN CALIFORNIA

The director of Public Health of California reported, under date of August 12, 1932, that plague had been proved by animal inoculation in two ground squirrels from a ranch 20 miles east of Hollister, San Benito County, Calif. These squirrels were shot August 5, 1932, in the course of routine plague-prevention work.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 95 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 33,895,000. The estimated population of the 88 cities reporting deaths is more than 32,340,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended August 6, 1932, and August 8, 1931

	1932	1931	Estimated expectancy
Cases reported			
Diphtheria:			
46 States	565	476	----------
95 cities	167	202	361
Measles:			
45 States	1,372	1,238	----------
95 cities	387	383	----------
Meningococcus meningitis:			
46 States	43	72	----------
95 cities	9	24	----------
Poliomyelitis:			
46 States	99	1,029	----------
Scarlet fever:			
46 States	898	812	----------
95 cities	299	294	267
Smallpox:			
46 States	56	159	----------
95 cities	7	20	19
Typhoid fever:			
46 States	1,067	1,071	----------
95 cities	146	140	122
Deaths reported			
Influenza and pneumonia:			
88 cities	271	308	----------
Smallpox:			
88 cities	0	1	----------
Minneapolis, Minn	0	1	----------

City reports for week ended Aug. 6, 1932

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded, and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1923 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	2	0	0	----------	0	0	0	2
New Hampshire:								
Concord	0	0	0	----------	0	0	0	0
Nashua	0	0	0	----------	0	0	0	0
Vermont:								
Barre	0	0	0	----------	0	1	0	0
Burlington	0	0	0	----------	0	0	0	0
Massachusetts:								
Boston	16	13	13	----------	0	14	25	5
Fall River	0	1	1	----------	0	4	0	2
Springfield	0	1	0	----------	0	4	0	3
Worcester	2	1	2	----------	0	7	0	4
Rhode Island:								
Pawtucket	0	0	0	----------	0	0	0	0
Providence	4	3	1	----------	1	1	1	0
Connecticut:								
Bridgeport	0	1	0	----------	0	6	1	0
Hartford	0	1	0	----------	0	0	0	0
New Haven	0	0	0	----------	0	1	5	1

City reports for week ended Aug. 6, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MIDDLE ATLANTIC								
New York:								
Buffalo	0	6	0		0	7	0	7
New York	46	98	37	3	2	105	72	67
Rochester	1	1	2		0	1	2	0
Syracuse	3	0	0		0	2	4	3
New Jersey:								
Camden	0	2	2		0	1	0	0
Newark	2	8	0	2	0	19	26	1
Trenton	0	1	0		0	5	0	4
Pennsylvania:								
Philadelphia	6	27	4		0	10	7	11
Pittsburgh	4	9	1	1	1	2	1	5
Reading	1	1	1		0	3	0	2
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	0	3	0		0	2	0	3
Cleveland	10	13	0	1	0	4	5	7
Columbus	2	2	5		0	1	0	1
Toledo	3	2	2	1	1	0	0	2
Indiana:								
Fort Wayne	0	1	11		0	1	0	0
Indianapolis	1	2	1		0	0	13	4
South Bend	0	0	0		0	0	0	0
Terre Haute		0						
Illinois:								
Chicago	14	48	13		0	13	6	10
Springfield	0	0	2		0	0	0	2
Michigan:								
Detroit	8	21	10		1	103	3	9
Flint	0	1	0		0	1	0	2
Grand Rapids	1	1	0		0	0	5	1
Wisconsin.								
Kenosha	0	0	0		0	7	0	0
Madison	3	0	1			6	1	
Milwaukee	11	6	1	2	2	6	3	3
Racine	3	0	0		0	0	1	0
Superior	2	1	0		0	0	3	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth	0	0	0		0	0	0	0
Minneapolis	3	7	0		0	2	0	1
St. Paul	7	3	0		0	1	4	3
Iowa:								
Des Moines	0	0	3			0	0	
Sioux City	0	0	0			0	0	
Waterloo	0	0	1			0	0	
Missouri:								
Kansas City	0	1	0		0	2	0	2
St. Joseph	0	0	0		0	0	0	2
St. Louis	0	11	3	1	1	0	1	2
North Dakota:								
Fargo	3	0	0		0	0	0	0
Grand Forks	0	0	0			1	0	
South Dakota.								
Aberdeen	3	0	0			0	0	
Nebraska:								
Omaha	0	1	1		0	1	1	3
Kansas:								
Topeka	0	0	3		0	2	2	0
Wichita	0	0	0		0	0	0	1
SOUTH ATLANTIC								
Delaware:								
Wilmington	0	1	0		0	0	0	0
Maryland:								
Baltimore	6	7	3	1	0	1	14	10
Cumberland	0	0	0		0	0	0	1
Frederick	0	0	0		0	0	0	0
District of Columbia:								
Washington	1	5	0		0	0	0	8
Virginia:								
Lynchburg	0	0	0		0	2	0	0
Norfolk	0	0	0		0	0	0	1
Richmond	0	2	0		0	0	0	1
Roanoke	0	0	1		0	0	0	0

City reports for week ended Aug. 6, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
SOUTH ATLANTIC—continued								
West Virginia:								
Charleston	0	0	0	------	0	0	0	1
Huntington	0	------	0	------	0	0	0	------
Wheeling	0	1	1	------	0	3	0	0
North Carolina:								
Raleigh	1	0	0	------	0	0	0	0
Wilmington	0	0	0	------	0	0	0	0
Winston-Salem	0	1	0	1	0	6	0	2
South Carolina:								
Charleston	0	0	0	6	0	0	0	1
Columbia	0	0	1	------	0	1	0	3
Georgia:								
Atlanta	0	2	1	4	0	0	0	8
Brunswick	0	0	0	------	0	0	0	0
Savannah	0	1	1	13	0	12	0	1
Florida:								
Miami	0	1	1	------	0	0	0	1
Tampa	0	0	1	1	1	0	0	0
EAST SOUTH CENTRAL								
Kentucky:								
Covington	------	0	------	------	------	------	------	------
Lexington	0	------	0	------	0	0	0	0
Tennessee:								
Memphis	0	1	0	------	0	0	0	2
Nashville	0	1	0	------	1	0	0	2
Alabama:								
Birmingham	0	1	0	------	0	0	0	2
Mobile	0	0	0	------	0	0	0	0
Montgomery	0	0	0	0	------	0	0	------
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith	0	0	0	------	------	0	0	------
Little Rock	0	0	0	------	0	0	0	2
Louisiana:								
New Orleans	0	5	7	------	0	0	0	6
Shreveport	0	0	0	------	0	0	2	2
Oklahoma:								
Muskogee	0	------	1	------	0	0	0	0
Oklahoma City	0	1	1	2	0	0	0	1
Tulsa	0	0	1	------	------	2	5	------
Texas:								
Dallas	0	2	14	------	0	0	0	5
Fort Worth	0	1	3	------	0	0	2	4
Galveston	0	0	0	------	0	0	0	0
Houston	0	2	2	------	0	1	0	2
San Antonio	0	1	0	------	0	0	0	1
MOUNTAIN								
Montana:								
Billings	1	0	0	------	0	0	0	0
Great Falls	0	0	0	------	0	0	1	0
Helena	0	0	0	------	0	0	0	0
Missoula	0	0	0	------	0	0	0	0
Idaho:								
Boise	------	0	------	------	------	------	------	------
Colorado:								
Denver	5	5	4	------	0	2	7	7
Pueblo	1	0	0	------	0	0	0	0
New Mexico:								
Albuquerque	0	0	0	------	0	0	1	0
Utah:								
Salt Lake City	2	1	0	1	1	2	0	0
Nevada:								
Reno	0	0	0	0	0	0	0	0
PACIFIC								
Washington:								
Seattle	6	1	0	------	------	2	1	------
Spokane	2	1	0	------	------	3	0	------
Tacoma	1	1	0	------	0	0	0	1
Oregon:								
Portland	1	3	0	------	0	4	0	2
Salem	1	0	1	1	------	1	0	------
California:								
Los Angeles	11	17	16	22	0	8	7	9
Sacramento	0	1	0	------	0	0	0	1
San Francisco	9	5	0	1	0	5	1	9

City reports for week ended Aug. 6, 1932—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND											
Maine:											
Portland	0	2	0	0	0	2	0	0	0	9	23
New Hampshire:											
Concord	0	0	0	0	0	0	0	0	0	0	5
Nashua	0	0	0	0	0	0	0	0	0	0	0
Vermont:											
Barre	0	0	0	0	0	0	0	0	0	0	2
Burlington	0	0	0	0	0	0	0	0	0	0	5
Massachusetts:											
Boston	17	27	0	0	0	8	2	1	0	50	165
Fall River	1	1	0	0	0	0	0	0	0	1	17
Springfield	1	3	0	0	0	0	0	0	0	0	27
Worcester	2	4	0	0	0	3	0	0	0	7	37
Rhode Island:											
Pawtucket	0	0	0	0	0	0	0	0	0	0	14
Providence	3	5	0	0	0	2	1	1	1	34	43
Connecticut:											
Bridgeport	1	3	0	0	0	1	0	1	0	2	20
Hartford	1	0	0	0	0	2	0	0	0	0	31
New Haven	0	0	0	0	0	0	0	0	0	4	26
MIDDLE ATLANTIC											
New York:											
Buffalo	6	5	0	0	0	8	0	0	0	33	107
New York	30	38	0	0	0	80	21	46	1	122	1,161
Rochester	3	5	0	0	0	0	0	0	0	5	54
Syracuse	1	3	0	0	0	0	0	0	0	27	38
New Jersey:											
Camden	1	2	0	0	0	2	1	0	0	0	27
Newark	4	11	0	0	0	5	1	2	0	20	56
Trenton	0	1	0	0	0	4	0	1	0	3	28
Pennsylvania:											
Philadelphia	16	20	0	0	0	19	5	5	0	47	375
Pittsburgh	8	5	0	0	0	9	0	1	0	20	128
Reading	0	0	0	0	0	1	0	0	0	7	20
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	4	9	0	0	0	8	1	3	1	13	88
Cleveland	10	22	0	0	0	19	2	3	0	59	159
Columbus	1	1	0	0	0	8	1	2	0	9	67
Toledo	2	3	0	0	0	2	1	1	0	19	42
Indiana:											
Fort Wayne	0	0	0	0	0	3	0	0	0	0	26
Indianapolis	2	2	2	0	0	3	1	3	0	0	--------
South Bend	1	0	0	0	0	2	0	0	0	1	11
Terre Haute	0	--------	0	--------	--------	--------	0	--------	--------	--------	--------
Illinois:											
Chicago	33	26	0	0	0	36	5	4	1	94	515
Springfield	1	3	0	0	0	0	0	3	0	6	17
Michigan:											
Detroit	22	22	1	0	0	20	4	4	1	84	198
Flint	4	5	1	0	0	1	0	1	0	8	16
Grand Rapids	3	4	0	0	0	1	0	0	0	19	26
Wisconsin:											
Kenosha	0	0	1	0	0	0	0	0	0	3	6
Madison	1	0	0	--------	--------	--------	0	0	--------	15	--------
Milwaukee	5	4	0	0	0	4	1	0	0	89	84
Racine	1	0	0	0	0	0	0	0	0	4	7
Superior	1	0	0	0	0	0	0	1	0	0	5
WEST NORTH CENTRAL											
Minnesota:											
Duluth	4	1	0	0	0	0	0	1	0	0	17
Minneapolis	10	0	0	0	0	2	0	0	0	4	86
St. Paul	6	2	1	0	0	0	2	0	0	32	35
Iowa:											
Des Moines	1	3	0	0	--------	--------	0	0	--------	1	23
Sioux City	1	0	0	1	--------	--------	0	0	--------	2	--------
Waterloo	0	0	1	0	--------	--------	0	0	--------	0	--------

City reports for week ended Aug. 6, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL—contd.											
Missouri:											
Kansas City	2	2	0	0	0	5	3	0	0	8	76
St. Joseph	0	0	0	0	0	0	0	0	0	2	12
St. Louis	7	3	1	0	0	4	5	6	1	14	169
North Dakota:											
Fargo	0	0	0	0	0	0	0	1	0	1	1
Grand Forks	0	0	1	0			0	0		0	
South Dakota:											
Aberdeen	0	0	0	0			0	0		0	
Nebraska:											
Omaha	1	4	0	0	0	0	1	0	0	4	41
Kansas:											
Topeka	0	0	0	0	0	0	1	0	0	0	12
Wichita	1	1	1	0	0	0	0	0	0	1	18
SOUTH ATLANTIC											
Delaware:											
Wilmington	0	0	0	0	0	0	0	1	0	1	25
Maryland:											
Baltimore	4	10	0	0	0	14	6	2	0	34	163
Cumberland	0	0	0	0	0	0	0	0	0	4	12
Frederick	0	2	0	0	0	0	0	0	0	0	1
District of Columbia:											
Washington	4	2	0	0	0	6	4	0	0	5	139
Virginia:											
Lynchburg	0	1	0	0	0	1	1	1	0	36	8
Norfolk	0	1	1	0	0	0	1	1	0	3	
Richmond	2	2	0	0	0	1	1	2	0	0	
Roanoke	1	0	1	0	0	0	0	2	0	0	17
West Virginia:											
Charleston	0	1	0	0	0	1	1	0	0	0	22
Huntington		0		0				0		0	
Wheeling	0	0	0	0	0	0	1	0	0	0	15
North Carolina:											
Raleigh	0	0	0	0	0	1	0	0	1	8	22
Wilmington	0	0	0	0	0	0	0	0	0	1	7
Winston-Salem	0	1	0	0	0	1	1	0	0	13	24
South Carolina:											
Charleston	0	1	0	0	0	2	1	4	2	0	24
Columbia	0	0	0	0	0	1	1	2	0	3	19
Georgia:											
Atlanta	2	2	1	0	0	6	3	6	3	4	73
Brunswick	0	0	0	0	0	0	0	0	0	0	2
Savannah	0	0	0	0	0	1	1	2	0	1	15
Florida:											
Miami	0	0	0	0	0	0	0	0	0	0	14
Tampa	0	0	0	0	0	0	0	1	0	0	17
EAST SOUTH CENTRAL											
Kentucky:											
Covington	0		0				1				
Lexington		0		0	0	2		2	0	0	16
Tennessee:											
Memphis	1	0	0	0	0	4	10	8	1	9	71
Nashville	1	1	0	0	0	1	5	2	0	0	40
Alabama:											
Birmingham	2	0	0	0	0	3	4	2	0	4	43
Mobile	0	0	0	0	0	0	1	0	0	0	13
Montgomery	0	0	0	0			2	0		1	
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	0	0	0			0	0		0	
Little Rock	0	0	0	0	0	1	1	0	0	0	3
Louisiana:											
New Orleans	4	8	0	0	0	9	5	2	1	2	126
Shreveport	0	0	0	0	0	3	1	4	1	1	23

City reports for week ended Aug. 6, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST SOUTH CENTRAL—continued											
Oklahoma:											
Muskogee	0	0	-------	0	0	0	-------	0	0	0	-------
Oklahoma City	1	8	0	0	0	3	3	0	1	0	52
Tulsa	0	0	0	0	-------	-------	1	7	-------	27	-------
Texas:											
Dallas	2	4	2	0	0	0	2	4	1	6	56
Fort Worth	1	0	0	2	0	1	2	3	0	0	37
Galveston	0	0	0	0	0	0	0	0	0	0	13
Houston	1	0	0	0	0	3	2	1	0	0	54
San Antonio	0	0	0	0	0	5	1	1	0	0	51
MOUNTAIN											
Montana:											
Billings	0	0	0	0	0	0	0	0	0	0	2
Great Falls	0	0	0	0	0	0	0	0	0	0	8
Helena	0	0	0	0	0	0	0	0	0	0	3
Missoula	0	0	0	1	0	0	0	0	0	0	2
Idaho:											
Boise	0	-------	0	-------	-------	-------	0	-------	-------	-------	-------
Colorado:											
Denver	8	8	0	0	0	5	0	0	0	13	61
Pueblo	0	0	0	0	0	0	0	3	0	0	7
New Mexico:											
Albuquerque	0	0	0	0	0	3	1	0	0	1	8
Utah:											
Salt Lake City	1	2	0	0	0	0	2	0	0	12	22
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	2
PACIFIC											
Washington:											
Seattle	8	1	1	0	-------	-------	1	1	-------	2	-------
Spokane	1	0	1	8	-------	-------	0	1	-------	0	-------
Tacoma	2	8	1	0	0	0	1	0	0	0	24
Oregon:											
Portland	1	2	4	2	0	1	0	0	0	0	62
Salem	0	0	0	0	-------	-------	0	0	-------	4	-------
California:											
Los Angeles	11	14	2	2	0	14	8	1	0	72	208
Sacramento	1	0	0	0	0	4	1	2	0	1	-------
San Francisco	5	0	1	0	0	7	1	1	0	10	145

Division, State, and city	Meningococcus meningitis: Cases	Meningococcus meningitis: Deaths	Lethargic encephalitis: Cases	Lethargic encephalitis: Deaths	Pellagra: Cases	Pellagra: Deaths	Poliomyelitis (infantile paralysis): Cases, estimated expectancy	Poliomyelitis (infantile paralysis): Cases	Poliomyelitis (infantile paralysis): Deaths
NEW ENGLAND									
Massachusetts:									
Boston	0	0	0	0	0	0	1	2	0
Rhode Island:									
Providence	0	0	0	0	0	0	0	2	0
MIDDLE ATLANTIC									
New York:									
New York	2	3	2	4	0	0	14	5	3
New Jersey:									
Trenton	1	0	0	0	0	0	0	0	0
Pennsylvania:									
Philadelphia	0	0	0	0	0	0	0	27	1

City reports for week ended Aug. 6, 1932—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	0	0	0	0	0	0	0	1	0
Cleveland	0	0	0	0	0	1	1	1	0
Indiana:									
Indianapolis	2	1	0	0	0	0	0	0	0
Illinois:									
Chicago	2	0	1	1	0	0	2	5	0
Michigan:									
Detroit	0	0	0	0	0	0	0	1	0
Flint	0	0	0	0	0	0	0	1	0
Wisconsin:									
Superior	0	0	0	1	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
St. Paul	0	0	0	0	0	0	0	1	0
Missouri:									
St. Louis	0	0	0	0	0	0	0	1	0
North Dakota:									
Fargo	0	0	0	0	0	0	0	1	0
SOUTH ATLANTIC									
Maryland:									
Baltimore [1]	1	1	0	0	0	0	0	0	0
District of Columbia:									
Washington	0	0	0	0	0	0	0	1	0
Virginia:									
Richmond	0	0	0	0	0	0	0	1	0
Roanoke	0	0	0	0	0	1	0	0	0
North Carolina:									
Raleigh	0	0	0	0	1	1	0	0	0
Wilmington	0	0	0	0	1	0	0	0	0
South Carolina:									
Charleston [1]	0	0	0	0	0	1	0	3	0
Georgia:									
Savannah [1]	0	0	0	0	6	0	0	0	0
EAST SOUTH CENTRAL									
Alabama:									
Montgomery	0	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans [1]	0	0	0	0	0	1	0	1	1
Oklahoma:									
Oklahoma City	0	0	0	0	0	1	0	0	0
Texas:									
Dallas [1]	0	0	0	0	1	1	0	0	0
Houston [1]	0	0	0	0	0	1	0	0	0
San Antonio	0	0	0	0	0	1	0	0	0
MOUNTAIN									
New Mexico:									
Pueblo	0	0	0	0	0	0	0	1	1
PACIFIC									
California:									
Los Angeles	1	0	0	1	0	1	2	2	0

[1] Typhus fever, 11 cases: 1 case at Baltimore, Md.; 1 case at Charleston, S. C.; 6 cases at Savannah, Ga.; 1 case at New Orleans, La.; 1 case at Dallas, Tex., and 1 case at Houston, Tex.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended August 6, 1932, compared with those for a like period ended August 8, 1931. The population figures used in computing the rates are esti-

mated mid-year populations for 1931 and 1932, respectively, derived from the 1930 census. The 98 cities reporting cases have an estimated aggregate population of more than 34,000,000. The 91 cities reporting deaths have more than 32,400,000 estimated population.

Summary of weekly reports from cities, July 3 to August 6, 1932—Annual rates per 100,000 population, compared with rates for the corresponding period of 1931 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931	July 23, 1932	July 25, 1931	July 30, 1932	Aug. 1, 1931	Aug. 6, 1932	Aug. 8, 1931
98 cities	[2] 31	43	[2] 31	42	[2] 27	33	[2] 25	35	[2] 26	32
New England	46	60	60	65	29	50	50	53	41	65
Middle Atlantic	28	50	28	37	21	34	19	31	21	26
East North Central	23	41	25	50	20	39	16	38	[4] 26	31
West North Central	40	31	45	31	30	33	21	17	15	29
South Atlantic	31	18	29	24	22	28	31	32	18	26
East South Central	[3] 6	23	[3] 12	29	[3] 25	12	[3] 12	12	[3] 0	41
West South Central	106	61	63	47	46	24	89	61	76	64
Mountain	17	17	17	61	34	35	26	35	[5] 36	26
Pacific	11	41	23	51	63	16	25	47	30	18

MEASLES CASE RATES

	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931	July 23, 1932	July 25, 1931	July 30, 1932	Aug. 1, 1931	Aug. 6, 1932	Aug. 8, 1931
98 cities	[2] 242	316	[2] 235	181	[2] 144	133	[2] 84	93	[2] 60	60
New England	558	351	395	317	247	209	115	132	91	135
Middle Atlantic	188	311	214	144	143	111	94	84	69	57
East North Central	409	527	419	316	239	214	131	153	[4] 83	87
West North Central	74	103	81	61	55	34	36	27	15	15
South Atlantic	104	259	63	107	29	83	31	47	49	34
East South Central	[3] 0	117	[3] 6	117	[3] 0	106	[3] 0	47	[3] 0	12
West South Central	33	27	23	17	23	14	10	10	3	3
Mountain	267	122	155	122	112	174	52	209	[5] 36	70
Pacific	185	182	145	123	80	125	40	57	34	43

SCARLET FEVER CASE RATES

	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931	July 23, 1932	July 25, 1931	July 30, 1932	Aug. 1, 1931	Aug. 6, 1932	Aug. 8, 1931
98 cities	[2] 83	79	[2] 84	70	[2] 63	53	[2] 52	47	[2] 46	46
New England	201	142	165	149	156	111	105	82	108	43
Middle Atlantic	82	89	98	68	57	56	50	52	40	51
East North Central	110	90	91	106	66	69	66	52	[4] 59	59
West North Central	45	44	72	42	59	29	30	31	25	19
South Atlantic	43	49	39	34	53	38	47	42	43	38
East South Central	[3] 0	53	[3] 37	23	[3] 25	6	[3] 6	35	[3] 6	41
West South Central	10	34	33	34	43	44	10	20	23	41
Mountain	86	52	9	26	78	0	52	61	[5] 45	61
Pacific	46	49	57	12	38	12	30	16	34	22

SMALLPOX CASE RATES

	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931	July 23, 1932	July 25, 1931	July 30, 1932	Aug. 1, 1931	Aug. 6, 1932	Aug. 8, 1931
98 cities	[2] 1	2	[2] 1	3	[2] 1	3	[2] 2	2	[2] 1	3
New England	0	2	0	0	0	0	0	0	0	0
Middle Atlantic	0	0	0	0	0	0	0	0	0	0
East North Central	0	1	0	4	0	2	0	1	[4] 0	2
West North Central	2	4	0	4	2	10	6	11	2	13
South Atlantic	0	4	0	0	0	0	0	2	0	2
East South Central	[3] 6	6	[3] 0	0	[3] 0	6	[3] 0	6	[3] 0	0
West South Central	0	10	0	7	0	0	0	3	0	0
Mountain	43	0	26	0	0	0	26	0	[5] 9	9
Pacific	4	8	10	22	11	20	10	8	10	14

See footnotes at end of table.

Summary of weekly reports from cities, July 3 to August 6, 1932—Annual rates per 100,000 population, compared with rates for the corresponding period of 1931 [1]—Continued.

TYPHOID FEVER CASE RATES

	Week ended—									
	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931	July 23, 1932	July 25, 1931	July 30, 1932	Aug. 1, 1931	Aug. 6, 1932	Aug. 8, 1931
98 cities	[2] 12	14	[2] 18	13	[2] 21	16	[2] 20	27	[3] 23	22
New England	5	2	7	12	5	10	12	12	7	14
Middle Atlantic	5	8	8	8	10	8	14	13	24	16
East North Central	10	5	13	5	13	5	12	12	[4] 14	10
West North Central	11	19	13	2	30	19	13	31	15	19
South Atlantic	24	28	18	47	43	69	63	77	45	53
East South Central	[2] 69	59	[2] 69	35	[2] 69	47	[2] 81	65	[2] 75	29
West South Central	46	81	33	58	125	10	49	169	40	95
Mountain	17	35	9	26	0	0	34	17	[5] 27	44
Pacific	4	6	10	6	11	27	6	4	11	14

See footnotes at end of table.

INFLUENZA DEATH RATES

	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931	July 23, 1932	July 25, 1931	July 30, 1932	Aug. 1, 1931	Aug. 6, 1932	Aug. 8, 1931
91 cities	[2] 2	3	[2] 2	2	[2] 3	1	[2] 2	3	[3] 2	2
New England	0	2	7	0	2	0	0	2	2	2
Middle Atlantic	2	4	1	0	4	1	1	4	1	3
East North Central	3	2	2	4	1	2	1	2	[4] 2	1
West North Central	0	0	0	3	3	0	0	0	3	0
South Atlantic	0	4	6	4	2	2	8	6	2	0
East South Central	[2] 7	6	[2] 0	0	[2] 0	0	[2] 7	13	[2] 7	13
West South Central	3	7	0	3	13	3	3	0	0	3
Mountain	9	0	9	0	0	0	0	0	[5] 9	0
Pacific	0	0	0	0	0	2	5	7	0	5

PNEUMONIA DEATH RATES

	July 9, 1932	July 11, 1931	July 16, 1932	July 18, 1931	July 23, 1932	July 25, 1931	July 30, 1932	Aug. 1, 1931	Aug. 6, 1932	Aug. 8, 1931
91 cities	[2] 49	50	[2] 45	47	[2] 49	44	[2] 48	48	[3] 42	48
New England	53	79	74	50	62	31	41	41	41	34
Middle Atlantic	63	59	46	63	49	55	46	59	44	52
East North Central	32	47	31	29	33	32	41	30	[4] 25	35
West North Central	35	88	41	71	70	53	87	47	41	56
South Atlantic	67	71	57	40	73	44	49	65	71	79
East South Central	[2] 27	51	[2] 20	45	[2] 34	45	[2] 48	51	[2] 41	64
West South Central	57	86	91	45	67	52	50	59	61	62
Mountain	43	61	52	35	78	17	52	44	[5] 63	44
Pacific	37	31	32	24	37	43	49	36	46	38

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1932, and 1931, respectively.
[2] Covington, Ky., not included.
[3] Terre Haute, Ind., Covington, Ky., and Boise, Idaho, not included.
[4] Terre Haute, Ind., not included.
[5] Boise, Idaho, not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended July 30, 1932.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases for the week ended July 30, 1932, as follows: Provinces not given in the table did not report any case of any disease included in the table.

Province	Cerebro-spinal fever	Influenza	Lethargic encephalitis	Poliomyelitis	Smallpox	Typhoid fever
Nova Scotia						2
New Brunswick						2
Quebec	1			15		34
Ontario			2	1		4
Manitoba	1				1	1
Alberta				2		
British Columbia		1				2
Total	2	1	2	18	1	45

Ontario Province—Communicable diseases—Comparative—Five weeks ended July 30, 1932.—The Department of Health of the Province of Ontario, Canada, reports certain communicable diseases for the five weeks ended July 30, 1932, and the corresponding period of 1931, as follows:

Disease	Five weeks, 1932		Five weeks, 1931	
	Cases	Deaths	Cases	Deaths
Cerebrospinal meningitis	1	2	4	2
Chancroid	1			
Chicken pox	480		328	
Conjunctivitis			1	
Diphtheria	98	8	103	7
Erysipelas	5			
German measles	16		17	
Gonorrhea	319		296	
Influenza		4	8	
Jaundice	1			
Leprosy	1			
Lethargic encephalitis	2	1	1	1
Measles	1,944		570	1
Mumps	289		132	
Paratyphoid fever	14		367	2
Pneumonia		92		79
Poliomyelitis	5		6	1
Puerperal septicemia	1	1		
Scarlet fever	142		210	2
Septic sore throat	33		29	
Smallpox	1		22	
Syphilis	269		245	1
Tuberculosis	244	53	112	33
Typhoid fever	42	1	44	4
Undulant fever	19		22	
Whooping cough	463	3	317	1

Quebec Province—Communicable diseases—Week ended July 30, 1932.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended July 30, 1932, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	1	Poliomyelitis	15
Chicken pox	7	Scarlet fever	37
Diphtheria	14	Tuberculosis	41
Erysipelas	2	Typhoid fever	84
German measles	1	Whooping cough	33
Measles	40		

LATVIA

Communicable diseases—May, 1932.—During the month of May, 1932, cases of certain communicable diseases were reported in the Republic of Latvia as follows:

Disease	Cases	Disease	Cases
Anthrax	2	Paratyphoid fever	14
Cerebrospinal meningitis	7	Poliomyelitis	4
Diphtheria	42	Puerperal fever	11
Erysipelas	23	Scarlet fever	42
Influenza	827	Tetanus	1
Leprosy	1	Trachoma	108
Lethargic encephalitis	1	Typhoid fever	82
Measles	50	Whooping cough	198
Mumps	172		

MEXICO

Tampico—Communicable diseases—July, 1932.—During the month of July, 1932, certain communicable diseases were reported in Tampico, Mexico, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria	13	1	Paratyphoid fever	1	1
Enteritis (various)	77	59	Tuberculosis	33	22
Influenza	85		Typhoid fever	4	1
Malaria	521	6	Whooping cough	29	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given

CHOLERA

[C indicates cases; D, deaths; P, present]

Place		Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Apr. 3–30, 1932	Week ended— May, 1932: 7	14	21	28	June, 1932: 4	11	18	25	July, 1932: 2	9	16	23	30	Aug. 6, 1932
China:																		
Amoy	C										3		15	149	392	399	192	
	D										2		11	85	202	181	103	
Canton	C		2	1			1	1	2	49	330	298	203	96	37	22	6	11
	D						1		1	22	152	90	73	24	7	2	1	
Dairen[1]																		
Hankow	C	1		3		8					6	10	10	10	9	60		
	D			1		3							3	3	2	5		
Hong Kong	C											9	45	33	19	21	39	30
	D											9	18	33	8	7	16	15
Kwantung	C												P					
Macao	D														5	21	29	
Nanking	C										123	131	104	111	78	104	144	
	D										45	34	22	21	8	19	29	
Newchwang	C											1	5					
	D												4					
Shanghai	C				11	11	8	40	92	90	130	276	314	217	318	411	504	
	D					1	1	1	10	9	23	11	20	21	16	35	41	
Swatow[2]	C						1			1		49	48	46				
	D											3	3	11				
Tientsin	C									3	16	22	19	144	55	5		
	D										5	3	3	8	9			
India	C	5,826	4,952	6,295	1,497	1,126	923	840	852	787	818							
	D	2,788	2,358	3,194	731	592	400	447	427	419	424							
Bombay	C	1												1	1		2	
	D	1												1			1	
Calcutta	C	1,118	162	350	174	228	141	106	79	63	106	132	143	129	76		52	
	D	54	73	148	58	125	79	59	38	27	51	70	60	53	35		18	
Chittagong	C	1	2															
	D	22	1															

Madras	C	3	6															
	D	3	3															
Rangoon	C						1				1	2			1			
	D						1				1	1						
India (French):																		
Chandernagor	C				11		3	5			1							
	D				5		2	5			1							
Karikal	C	2																
Pondicherry Territory	C		2															
	D		2															
Pondicherry	C		1															
	D		1															
Indo-China (see also table below):																		
Pnompenh	C			1			1		1		1	1						
	D			1			1		1		1	1						
Saigon and Cholon	C	1	1	2	1	1	2	2	2	2	1	1	1					
	D			2	1	1	2	2	1	1	1	1	1					
Japan:																		
Kobe	C									1	1							
Tokyo	C									1	2							
Persia: Kouh Bezman	C			[3] 1														
Philippine Islands:																		
Bulacan Province	C																2	
	D																1	
Capiz Province	C	23																
	D	20																
Iloilo Province	C																1	
	D																1	
Laguna Province	D													1				
Siam	C		1	2				8	8							1		
	D		2	1				7	4									
Bangkok	C		2	1							2							
	D		1															
On vessels:																		
S. S. Angora at Rangoon from Calcutta	C		1															
S. S. Narbada at Rangoon from Calcutta	C			1														
	D			1														
S. S. Shanghai Maru at Kobe from Shanghai	C								1								1	
S. S. President Wilson en route to Manila from Honolulu via Shanghai and Hong Kong	C											2						
	D											1						
S. S. Protesilus at Hong Kong from Shanghai	C																P	
S. S. Nikawa Maru at Hong Kong from Shanghai	C																P	

[1] 119 cases, 71 deaths, in Dairen, up to Aug. 6, 1932.
[2] Local unofficial reports included 159 deaths from cholera in Swatow, China, from June 10 to 30, 1932.
[3] A suspected case.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

CHOLERA—Continued

[C indicates cases; D, deaths; P, present]

Place		January, 1932	February, 1932	March, 1932	April, 1932			May, 1932			June, 1932		
					1–10	11–20	21–30	1–10	11–20	21–31	1–10	11–20	21–30
Indo-China (French) (see also table above):													
Annam [4]	C		4					93	20	21			
	D		4					7	2	6			
Cambodia [4]	C	12	5	10	4	1	20	12	6		13	16	13
	D	6	4	5	3		8	2	1		10	12	7
Cochin-China [4]	C	5	7	9	3	6	18	11	30		17	17	17
	D	4	5	5	2	3	13	8	21		16	12	14
Laos [4]	C				7								
	D				3								

PLAGUE [1]

Place		Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Apr. 3–30, 1932	Week ended— May, 1932				June, 1932				July, 1932					Aug. 6, 1932
					7	14	21	28	4	11	18	25	2	9	16	23	30	
Argentina:																		
Cordoba Province	C			2														
Rosario	D							1										
San Luis Province	C									1	1							
Belgian Congo	C							2										
British East Africa (see also table below):																		
Tanganyika	C		2						19	1								
	D								11									
Uganda	C	8	4	39	11	9	6	11	16	25	8	20						
	D	6	4	36	7	8	6	10	15	24	7	16						
Canary Islands: Palma Island—Los Lanos	C					1												
Ceylon: Colombo	C	4	3	2	1	3		2	5	3	3	2	5	1				
	D	3	3	2	1	1		2	5	3	3	2	5	1				
Plague-infected rats		1	1	5	2	2		4										

Chile: Antofagasta—Plague-infected rats																		3
China:																		
Kwang Chow Wan	C		8															
	D		8															
Shensi Province	C	P																
Dutch East Indies:																		
Java and Madura	D	459	362	365	70	62	76	71	72									
Tegal	C	1																
West Java	C	141	213	239			41	44	45	63	51	37	41					
	D	139	213	237			41	43	45	63	51	36	42					
Ecuador (see table below).																		
Egypt:																		
Alexandria	C		2		1	2	1	8	1	2		1	3	1		1		
	D					2		1	2	1	1		1	1				
Assiout	C																1	
Beheira	C			1	2				1	1						1	1	
	D			1	3				1							2		
Beni Suef	C			37	2													
	D			8	3													
Gharbieh	C								2		1							
	D									1								
Minieh	C		3													1		
	D		3													1		
Hawaii Territory:																		
Hawaii Island—																		
Hamakua—																		
Honokaa	C	2																
	D	2																
Plague-infected rats		1																
Kukaiau—Plague-infected rats								1	1									
Maui Island—																		
Makawao	C	1																
	D	1																1
Plague-infected rats		4																
India	C	8, 593	9, 724	5, 197	684	474	256	259	133	101	99							
	D	4, 970	5, 543	3, 219	505	360	203	192	91	70	48							
Bassein	C	4	9	5	2					2		1		2			1	
	D	4	7	4	2					2		1		1			1	
Bombay	C	5	8	19	2	2	1		1									
	D	5	6	15	1	2	1		1						1			
Plague-infected rats		109	117	122	25	21	1	11	3		9	11	5	5	5	6	10	
Madras	C			[3]1													5	
	D			1														
Madras Presidency	C	70	158	69	18	5	6	11	13	32	28	55						
	D	47	86	24	4	4	1	2	8	13	6	11						
Rangoon	C	9	4	7				1				1	2				1	
	D	8	4	6									2				1	
Plague-infected rats		2	8	5		2		1		1		2	2	2	1		1	

[1] Including plague in the United States and its possessions.

[3] An imported case.

[4] Reports incomplete.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place		Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Apr. 3–30, 1932	Week ended— May, 1932: 7	14	21	28	June, 1932: 4	11	18	25	July, 1932: 2	9	16	23	30	Aug. 6, 1932
Indo-China (see table below).																		
Iraq: Baghdad	C	3										1				1		
	D	1																
Madagascar (see table below).																		
Morocco	C													5	1			
Peru (see table below).																		
Senegal (see table below).																		
Siam	C	1	7															
	D		3															
Southwest Africa.[1]																		
Syria: Beirut	C			2							1		2			1	1	
Union of South Africa: Orange Free State	C	P	P															
	D		10															
United States: California—																		
Los Angeles—Plague-infected rats				1	2					1								
San Benito County—Plague-infected ground squirrels																		2
On vessel:																		
Steamship Columbia, at Naples from Barcelona—Plague-infected rats												2						

Place		January, 1932	February, 1932	March, 1932	April, 1932	May, 1932	June, 1932
British East Africa (see also table above): Kenya	C	17	33	22	18	20	39
Ecuador:							
Province—							
Chimborazo	C	8	13		6	10	2
Loja	C	11					
Indo-China	C	17	P	P	9	2	1
	D	9			6	1	1
Madagascar:							
Province—							
Ambatolampy	C	23	40	25			
	D	23	38	25			
Ambositra	C	166	90	81	19		
	D	152	81	67	17		
Antisirabe	C	53	45	54	21	26	
	D	51	45	53	21	26	
Meavatanana	C			4			
	D			4			
Miarinarivo	C	15	13	9	6	1	
	D	15	12	9	6	1	
Moramanga	C	13	9	3			
	D	13	9	3			
Tananarive	C	203	148	71	42	20	
	D	196	140	70	40	20	

Place		January, 1932	February, 1932	March, 1932	April, 1932	May, 1932	June, 1932
Peru	C	11	2	1	2	5	2
	D	8	2				
Department—							
Canete	C	3					
Lambayeque	C						2
Lima	C	6					
Lima	C		1	1	2	1	
	D		1				
Piura	C	1					
Senegal.							
Dakar [4]	C			10			
	D			5			
Louga [4]	C					3	1
	D					2	1
Rufisque [4]	C					3	21
	D					3	17
Yombel [4]	C			9			
	D			5			

[3] 139 cases of plague with 35 deaths were reported in Ovamboland, Southwest Africa, up to July 2, 1932. Antiplague measures have been taken.
[4] Reports incomplete.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX

[C indicates cases; D, deaths; P, present]

Place		Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Apr 3–30, 1932	Week ended— May, 1932 7	14	21	28	June, 1932 4	11	18	25	July, 1932 2	9	16	23	30
Aden	C		1														
Algeria:																	
Algiers	C									1	1						
Constantine Department	C			2	1		1										
Philippeville	C			1													
Southern Territories	C	2															
Brazil:																	
Porto Alegre (alastrim)	C	19	5	8	2	2					3	2	3				
	D		1														
Santos	C														2		
British East Africa: Tanganyika	C	5	P		79	11			19		4						
	D	2							11		1						
British South Africa:																	
Northern Rhodesia	C									4							
Southern Rhodesia	C		4	7													
Canada:																	
British Columbia	C	17	9									[1] 1					
	D	9	3														
Manitoba	C			1												[1] 1	1
Nova Scotia	C	1															
Ontario	C	21	4	6	1			23						[1] 1			
Quebec	C	8										[1] 1					
Saskatchewan	C	30	6	8	3	1	3	6		[1] 1		[1] 2		[1] 3		[1] 3	
China.																	
Amoy	C	121	45	17	3		2	3				1					
	D	44	25	11	2		2	2				1					
Canton	C	44	79	81	19	9	5	9	1	3	3	2	1	1	1		1
	D	1	7	1	1												
Foochow	C	P	P	P		P		P		P		P		P			
Hankow	C	4	5	3	1	1	3										
	D	1															
Hong Kong	C	51	45	55	7	9	7	1	4	5	2	1	1	1	1		
	D	23	28	20	7	6	2	2	4	6	1	1	1	2		1	
Manchuria: Dairen	C	1	16	8	1		1			2	3						
	D			2	1		1			2	1						
Shanghai	C	167	102	90	16	6	5	6	3	3							
	D	467	45	35	6	5		2	1	2							

Swatow	C	1															
Tientsin	C	2	8	2	1				2								
	D	1	1														
Chosen (see table below).																	
Dahomey	C		6	5	2					15		9					
	D		1	1						6		1					
Dutch East Indies	C													6			
Egypt:																	
Alexandria	C		1			1	1				1				1	3	3
Cairo	C														1		1
Suez	C	2	20	4	1												
	D		3														
Finland	C							1									
Gold Coast (see table below).																	
Great Britain:																	
England and Wales	C	258	273	315	68	76	56	68	49	36	25	30	22	35	37	10	18
London	C	136	129	137	41	39	25	29	49	18	15	18	19	28	27	5	11
London and Great Towns	C	203	236	257	59	60	47	52	37	31	37	23	21	32	32	10	15
Greece (see table below).																	
Guatemala (see table below).																	
Honduras: [2]																	
Ceiba	D	1	2	2													
Puerto Castilla	C	4		4			1	P			2				1	P	
Tegucigalpa	C	5															
Tela	C		2	2				1									
Trujillo	C	35															
	D	5															
India	C	9,709	12,040	13,716	4,230	3,388	2,771	2,879	3,418	2,623	2,655						
	D	1,896	2,234	2,895	996	796	676	815	812	620	729						
Bassein	C			1													
	D			1													
Bombay	C	23	27	25	10	12	2	12	7	4	5	6	5	3	9	9	14
	D	10	12	10	2	4	1	5	4	2	3	4	3	3	6	8	5
Calcutta	C	102	159	133	17	35	22	19	15	16	21	12	12	12	10	6	9
	D	54	115	99	12	29	16	10	17	14	8	8	9	10	8	6	7
Chittagong	C		2			2											
	D		1			1											
Cochin	C	9	3	1												2	
Karachi	C	23	19	29	4	5	3	4	7	5	3	5	1				1
	D	8	8	9		2	1	3	1	1	1	1					
Madras	C	15	51	58	17	10	10	10	3	8	5	6	8	8	6	13	11
	D	4	16	11	2	4	2	3		3	2	3	2	3		2	
Moulmein	C	4	7	1						5							
Negapatam	C	1	1				1	2									
	D						1										
Rangoon	C	418	606	260	18	26	13	9	6	10	5	8	8	7	9	2	6
	D	127	179	88	9	11	6	2	4	4	1	2	2	1	3		
Tuticorin	C	36	14	5	4						1						
	D	8	9	3	5						1						
Vizagapatam	C	3	2										1				

[1] These cases of smallpox are for periods of 2 weeks.

[2] 590 cases of smallpox with 15 deaths were reported in Honduras from July, 1931, to Feb. 16, 1932.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Apr. 3–30, 1932	Week ended— May, 1932: 7	14	21	28	June, 1932: 4	11	18	25	July, 1932: 2	9	16	23	30
India (French):																	
Karikal	C	4	19	21	2	4	1	4		2							
	D	4	9	12	2	2	1	2		1							
Pondicherry Territory	C	20	29	22	3	5	28	11		4	2	1	3		5	3	2
	D	20	20	19	3	5	28	11		4	2	1	3		5	3	2
Indo-China (see also table below):																	
Pnompenh	C	2	1														
Saigon and Cholon	C	145	212	113	12	88	8	5	3	3	3	9	2	1	2	2	2
	D	85	174	101	11	7	7	5	3	3	2	9	2	1	2	2	2
Iraq:																	
Baghdad	C	4	20	27	4	7	10		14	9	3	1		4	1	4	3
	D	4	10	13	2	3	3		6	4	2			1			1
Basra	C	2	11	4	1	1	4	2	2	4	2			4			
	D			4		1	1	1	1		1			1	1		
Ivory Coast (see table below).																	
Japan:																	
Kobe	C	1	2	1		1	7	2									
	D		1					1									
Nagasaki	C				1	4	4	4	1	1	1						
Osaka Prefecture [1]	C			93	34	45											
Osaka	C					1											
Taiwan	C	58	1	1													
Mexico:																	
Chihuahua	D	3	1	1			1			5						1	2
Durango	D			1													
Jalisco (State)—Guadalajara	D		1	2		1	1		1	1							
Mexico City and surrounding territory	C	33	6	16	3	2	3	9	4	7	2	5	6	2	5	3	
	D	1		2		1									1		
Monterrey	C	8	1	2	1			1									
Saltillo	D						1	2	2				2	1			
San Luis Potosi	D	2	3	2	1			1		1							
Torreon	C	2	2	3		1	1	1	1	1	1						
	D	3	2	3		3			1			1					

Morocco (see table below).

Nigeria	C	46	750	116		939		104									
	D	2	111	19		316		17									
Palestine	C					1									1		
Poland	C					1			1								
	D					2			1								
Portugal:																	
Lisbon	C	50	38	26	10	5	8	6	2	5	6	12	1	2	3	4	6
Oporto	C	14	14	21	3	5	8	8	4	9	8	2	8	7	10	4	5
Salvador	C	85	10														
Sarawak	C														7		
Siam	C		2					1	8	1							
Sierra Leone [4]	D								4	1							
Straits Settlements	C	6	1														
	D		2							1	1	1					
Sudan (Anglo-Egyptian)	C	8	4	3													
	D	1															
Syria (see table below).																	
Tunisia: Tunis	C		1														
Turkey (see also table below): Istanbul	C	1		1		1						2					
Union of South Africa:																	
Cape Province	C			P	P	P	P	P	P			P					
Orange Free State	C			P													
Transvaal	C		P	P	P		P	P	P	P							
Upper Volta	C						11		1								
	D						1										
On vessels:																	
S. S. Frauenfels at Suez from Calcutta	C		1														
S. S. MacGillivary at Suez from Rangoon	C		[5] 1														
S. S. Tainui at Southampton from New Zealand	C		[5] 1														
S. S. Glenbank at Suez from Aden	C		1														
S. S. Tuscania at Suez from Bombay	C								1								
S. S. Tilawa at Singapore from Amoy and Hong Kong	C								1								
S. S. Marinix Van Ste. Aldegonde at Port Said	C												2				

[3] 264 cases of smallpox were reported in Osaka Prefecture, Japan, from Mar. 1 to May 28, 1932.
[4] From Mar. 6 to June 11, 1932, 814 cases of smallpox, with 11 deaths, were reported in Sierra Leone.
[5] A suspected case.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		January, 1932	February, 1932	March, 1932	April, 1932			May, 1932			June, 1932	
					1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20
Gold Coast	C	2								2		
	D	1										
Indo-China (see also table above)	C	309	660	727	175	247	146	211	78		61	130
	D	148	231	342	80	97	64	46	37		27	41
Ivory Coast	C										19	
	D										1	
Syria: Beirut	C	5			1		1					

Place		January, 1932	February, 1932	March, 1932	April, 1932	May, 1932	June, 1932
Chosen	C	1	6	30	55	55	
	D		3	9	5	8	
Greece	C			1	8		
Guatemala	C	5					
	D	1					
Morocco	C	488	368	308	101	101	27
Turkey (see also table above)	C	31	22	2			
	D	1	1				

TYPHUS FEVER

Place		Jan. 10-Feb. 6, 1932	Feb. 7-Mar. 5, 1932	Mar. 6-Apr. 2, 1932	Apr. 3-30, 1932	Week ended—												
						May, 1932				June, 1932				July, 1932				
						7	14	21	28	4	11	18	25	2	9	16	23	30
Algeria:																		
Algiers	C	1	3	7	40	7	23	31		8	5	5	12	33				
Constantine Department	C	7		7						1				9		69	24	
Geryville	C	7	1															
Oran	C			1					4	10								

Bulgaria	C	44	66	44	45	10	7	16	5	4	5	3	3	3	-	-	-	-
	D	6	6	2	9	-	2	1	-	1	-	1	-	-	-	-	-	-
Chile:																		
Antofagasta	C	1	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-
Iquique	C	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Santiago	C	-	-	1	1	-	-	-	1	1	5	1	1	-	-	-	-	-
China:																		
Hankow	C	-	-	5	-	-	1	-	1	-	-	1	-	1	-	-	-	-
Swatow	C	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tientsin	C	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Chosen (see table below).																		
Colombia: Cali	D	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Czechoslovakia (see table below).																		
Egypt:																		
Alexandria	C	-	1	-	-	-	-	-	1	5	2	-	1	-	-	-	-	-
Beheira	C	-	70	46	14	-	-	-	-	-	-	-	-	-	-	-	-	-
	D	-	16	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-
Dakahlia	C	-	-	-	1	-	-	69	-	-	-	-	-	-	-	-	-	-
Gharbieh	C	-	12	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-
	D	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Port Said	C	-	-	-	-	-	-	-	-	1	-	-	-	-	1	2	-	-
Provinces	C	43	333	676	222	27	38	38	60	139	-	-	-	72	50	-	-	-
	D	3	25	49	43	6	1	1	-	10	-	-	-	2	5	-	-	-
Greece (see table below).																		
Guatemala (see table below).																		
Irish Free State																		
Cork County—Schull	C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Roscommon County—																		
Leitrim	C	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
	D	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Roscommon	C	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Lithuania (see table below).																		
Mexico:																		
Mexico City, including municipalities in Federal District	C	25	20	7	11	2	-	5	1	2	4	-	1	3	3	3	2	-
	D	9	12	4	3	-	-	-	2	-	1	-	1	1	1	1	-	-
San Luis Potosi	D	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Morocco	C	6	59	29	34	3	7	7	2	13	5	4	4	5	-	-	-	-
	D	-	6	6	1	-	-	-	-	-	3	-	-	-	-	-	-	-
Palestine	C	3	1	-	-	1	-	-	-	2	1	-	1	-	1	-	-	-
Paraguay: Asuncion	D	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Persia	C	-	-	-	-	-	-	-	123	69	-	-	-	-	-	-	-	-
	D	-	-	-	-	-	-	-	4	5	-	-	-	-	-	-	-	-
Poland	C	265	215	255	414	70	106	106	98	83	77	21	23	38	30	18	15	-
	D	10	21	22	39	7	4	5	9	3	4	1	6	3	3	1	1	-
Portugal:																		
Lisbon	C	-	-	-	-	-	-	-	-	2	5	-	-	-	-	-	-	-
Oporto	C	1	1	-	10	3	-	-	-	4	-	-	-	-	-	-	-	-
Rumania	C	264	296	270	252	61	60	53	60	40	-	-	-	-	-	-	-	-
	D	13	28	31	21	8	8	-	7	5	-	-	-	-	-	-	-	-
Tunisia: Tunis	C	1	24	81	77	26	15	13	1	13	9	6	-	-	3	2	3	-
	D	-	3	8	4	-	-	-	-	-	-	-	-	-	-	-	-	-

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

Place		Jan. 10–Feb. 6, 1932	Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Apr. 3–30, 1932	Week ended— May, 1932: 7	May, 1932: 14	May, 1932: 21	May, 1932: 28	June, 1932: 4	June, 1932: 11	June, 1932: 18	June, 1932: 25	July, 1932: 2	July, 1932: 9	July, 1932: 16	July, 1932: 23	July, 1932: 30
Turkey (see table below).																		
Union of Socialist Soviet Republics (see table below).																		
Union of South Africa:																		
Cape Province	C	P	P	P	P	P	P	P	P	P		P	P	P				
Natal	C		P		P	P					P	P	P	P				
Orange Free State	C	P	P	P	P	P	P	P				P	P	P				
Transvaal	C	P	P							P								
Venezuela: Caracas (see table below).																		
Yugoslavia (see table below).																		

Place		January, 1932	February, 1932	March, 1932	April, 1932	May, 1932	June, 1932
Chosen: Seoul	C		5	4			
	D		1				
Czechoslovakia	C	1			1	5	
Greece	C	4	4	7	1		4
Guatemala	C	18	2	42	5		19
	D	3		3		8	3
Lithuania	C	21	10	32	25	13	16
	D	3	3	3	5	1	
Turkey	C	14	22	6	1		
	D	3	1	3			
Union of Socialist Soviet Republics	C	8,670	9,017	9,765			
Venezuela: Caracas	D	2					
Yugoslavia	C	11	26	5	29	34	
	D		2	1		6	

YELLOW FEVER

Place		Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Apr. 3–30, 1932	Week ended— May, 1932				June, 1932				July, 1932		
					7	14	21	28	4	11	18	25	2	9	16
Bolivia.[1]															
Brazil															
Bahia State—Esplanada	C				P										
Ceara State	C			1											
	D			1											
Espirito Santo State	C		2	1											
	D		2	1											
Santa Teresa (about 56 miles from Victoria)	D	1													
Parahyba State	C											1			
	D											1			
Pernambuco State	D			1									1		
Dahomey: Porto Novo	C		1												
	D		1												
Gold Coast															
Avudua	C		1	1											
Cape Coast	C		P												
Tamale	C		1												
Yapei	C	1													
Nigeria	C							1							
Upper Volta	C														1
	D														1

[1] Indirect reports show cases suspected to have been yellow fever in southern Bolivia during April, 1932.

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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CONTENTS

PUBLIC HEALTH REPORTS

VOL. 47 SEPTEMBER 2, 1932 NO. 36

CURRENT PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES[1]

July 17–August 13, 1932

The prevalence of certain important communicable diseases, as indicated by weekly telegraphic reports from State health departments to the United States Public Health Service, is summarized in this report. The underlying statistical data are published weekly in the Public Health Reports, under the section entitled "Prevalence of Disease."

Poliomyelitis.—During the current 4-week period the number of reported cases of poliomyelitis (395) was more than twice the number reported for the preceding 4-week period—about the usual seasonal increase. The States along the Atlantic coast and the North Central groups seemed to be mostly responsible for the increased incidence. In New York the cases rose from 23 to 39, in Pennsylvania from 8 to 112; in Illinois from 12 to 32, in Michigan from 3 to 15, in Iowa from 1 to 8, and in Minnesota from 8 to 17.

The total number of cases was slightly below the average for a period of years preceding the year 1930, was about 13 per cent of the number of cases reported for the same period in 1931, and was less than half the number reported in 1930—both epidemic years.

The most appreciable increases this year have been reported from the same regions in which the disease first appeared in epidemic-like form last year at this season. The far West and Mississippi Valley areas have reported no unusual rise. In 1930 those regions were the first to report a more than normal increase in the number of cases at this season of the year.

Meningococcus meningitis.—A slight increase over the preceding 4-week period in the incidence of meningococcus meningitis was reported for the country as a whole during the four weeks ended August 13. Out of 157 cases reported, New York reported 10, Pennsylvania 23, Indiana 23, Illinois 13, Kentucky 8, California 7, and Wisconsin and Missouri 5 each. The remaining cases were widely scattered over the

[1] From the Office of Statistical Investigations, U. S. Public Health Service. The numbers of States included for the various diseases are as follows: Typhoid fever, 47, poliomyelitis, 48; meningococcus meningitis, 48, smallpox, 48; measles, 45; diphtheria, 47, scarlet fever, 47, influenza, 39 States and New York City. The District of Columbia is counted as a State in these reports.

various geographic areas. As compared with previous years, the incidence maintained the same low level through the current period that has characterized it throughout the present year. Each geographic area, except the South Atlantic, reported the smallest number of cases for this period in four years.

Typhoid fever.—For typhoid fever the number of cases increased from 2,814 for the preceding four weeks to 4,852 for the current period. In relation to previous years the current incidence was the highest in four years for this period. The numbers of cases reported for the corresponding four weeks in 1931, 1930, and 1929 were 3,620, 3,510, and 3,198, respectively. Each geographic area except the Mountain and Pacific contributed to the increase. More than twice the number of cases were reported from the East North Central group of States than occurred at this time last year. In other groups the increases ranged from 17 to 35 per cent. The Mountain and Pacific group reported a 16 per cent decrease. For only one 4-week period during 1932 have there been fewer cases reported for the country as a whole than were reported for a corresponding period last year.

Scarlet fever.—The number of reported cases of scarlet fever for the 4-week period under report was 3,983, as against 3,362, 2,962, and 4,118 for the corresponding period in 1931, 1930, and 1929, respectively. With one exception, the South Central, all geographic regions reported an increase as compared with last year. In the New England and Middle Atlantic States, where the disease has been unusually prevalent, the number of cases for the current period was less than 50 per cent of the number for the preceding 4-week period, but it was still the highest for that group for this period in 4 years. In other areas the incidence was considerably above that of 1931 and 1930, but not as high as in 1929. The South Central States reported approximately the same number of cases as was reported for the same period last year.

Measles.—The incidence of measles dropped more than 70 per cent during the current 4-week period as compared with the preceding four weeks. The decline was a little slower than during the same period in preceding years. The number of cases (7,626) was about 20 per cent in excess of last year's figure and was slightly above the incidence in 1930 and 1929 for the corresponding period. Of the six geographic areas reporting, only two, the South Central and Mountain and Pacific, reported fewer cases than were reported last year. In both of those regions the incidence was the lowest for this period in four years. In the other areas the increases ranged from 4 per cent in the West North Central to 88 per cent in the South Atlantic.

Influenza.—While reports indicate that influenza was slightly more prevalent during the current period than it was at this time in the three preceding years, the tendency was toward the usual summer

low level. For the four weeks ended August 13 the number of cases totaled 1,160, which was 1.4 times the number reported for this period in 1931 and 1929 and 2.2 times the number in 1930. No group of States reported an exceptionally large number of cases, but the South Atlantic reported 519 for the current period as against 278 last year and the Mountain and Pacific group reported 261 as against 83 last year.

Diphtheria.—Diphtheria was slightly more prevalent during the current period than it was during the same period last year, but it was considerably below the average for preceding years. A comparison of geographic areas shows that the incidence was the highest in four years in the South Central and far-western groups of States, while in the New England and Middle Atlantic and East North Central groups the incidence was the lowest in four years. For the country as a whole 2,170 cases were reported.

Smallpox.—The smallpox incidence (307 cases) for the current period was less than 50 per cent of last year's incidence for the same period and only 22 per cent of the incidence for this period in each of the years 1930 and 1929. No further cases were reported from Vermont or Connecticut, but New York reported 18 cases, as compared with 15 for the preceding period. Each geographic area reported fewer cases than during the same period last year, and in each one, except the New England and Middle Atlantic, the incidence was the lowest in four years.

Mortality, all causes.—The mortality rate from all causes in a group of large cities as reported by the Bureau of the Census averaged 9.7 per 1,000 inhabitants (annual basis) for the 4-week period ended August 13. For the same period last year the average rate was 10.3 and in 1930 the rate was 11. The average rate for this same period for the six preceding years was 10.7.

THE INCIDENCE AND TIME DISTRIBUTION OF COMMON COLDS IN SEVERAL GROUPS KEPT UNDER CONTINUOUS OBSERVATION [1]

By W. H. Frost, *Consultant*, and Mary Gover, *Associate Statistician, United States Public Health Service*

INTRODUCTION

In the autumn of 1923 the United States Public Health Service undertook a systematic inquiry into the prevalence, crude symptomatology, and certain broad epidemiological features of so-called common colds, or, more precisely, of the whole group of minor respiratory

[1] From the Office of Statistical Investigations, U. S. Public Health Service, in cooperation with the Department of Epidemiology of the Johns Hopkins University School of Hygiene and Public Health.

affections which includes common colds. Since there appeared to be no practicable method of obtaining the desired information except by direct reports from intelligent and interested observers, Surg. J. G. Townsend, who was in charge of the study, enlisted for this purpose two large groups of volunteers, namely, (1) students at a number of universities and colleges, together with a relatively small number of employees in certain offices of the Government in Washington; and (2) medical officers of the Army, Navy, and Public Health Service and members of university faculties.

The members of both groups reported by mail directly to the Public Health Service at regular semimonthly intervals, using simple forms provided for the purpose. The students reported only for themselves individually, while each medical officer and faculty member reported for his entire household. Further details concerning the scope and methods of the inquiry, including descriptions of the record forms used, are given in a previous publication (Townsend, 1924).

The student groups, organized in different localities at various dates, mostly in September, October, and November, 1923, continued to report until June 15, 1925, a period of something more than 18 months. During this time the number of reporters varied from a maximum of 7,050 in the early months of the investigation to 3,194 at the close. The family group, built up gradually during the first six months to about 3,700, numbered approximately 3,000 when the investigation was discontinued. The reports from this group, begun in September, 1923, simultaneously with the earliest reports from students, continued a year longer than the latter, that is, to June 15, 1926, thus affording a continuous record for more than two and one-half years.

Two progress reports on the study of these two groups have been issued. The first of these (Townsend, 1924) describes the procedure followed in collecting the data and presents a brief summary of incidence rates, by semimonthly periods, in the students reporting from seven different localities; it also includes a provisional tabulation of symptom frequencies in each diagnostic class. The second report (Townsend and Sydenstricker, 1927) presents a statistical description of the cases reported in families with respect to the symptoms recorded under various diagnostic classifications, the incidence of cases in relation to sex and age, and seasonal distributions during the calendar year 1924.

The present report deals with gross incidence and seasonal distribution of the cases reported by the student and family groups throughout the full periods of observation.

GROSS INCIDENCE RATES IN STUDENT AND FAMILY GROUPS

Considering only those groups of sufficient size which reported continuously (as groups, not as individuals) throughout the designated periods, the recorded incidence of colds and other minor respiratory disorders in three successive 26-week periods was as shown in Table 1.

TABLE 1.—*Incidence of respiratory diseases [1] in successive 26-week periods in student and family groups*

CASE RATES [2] PER 1,000 PERSONS OBSERVED

City	Mean number of persons in each group	26-week period: Dec 2, 1923, to Mar 31, 1924	26-week period: June 1, 1924, to Nov 29, 1924	26-week period: Nov 30, 1924, to May 30, 1925	52-week period, June 1, 1924, to May 30, 1925
Boston (Harvard University)	668	1,905	1,429	1,731	3,160
South Hadley (Mount Holyoke College)	617	----------	1,563	1,773	3,336
Baltimore (Johns Hopkins University)	485	2,014	1,399	1,545	2,944
Washington (Georgetown University) [3]	485	1,735	1,174	1,191	2,365
New Orleans (Tulane University)	393	1,652	1,383	1,357	2,740
Chicago (University of Chicago)	575	2,081	1,321	1,649	2,970
Columbus (Ohio State University)	1,208	1,804	1,213	1,446	2,659
Salt Lake City (University of Utah)	227	----------	1,752	1,479	3,231
Tucson (University of Arizona)	106	----------	1,378	1,508	2,886
Berkeley (University of California)	1,746	1,491	1,661	1,518	3,179
Mean [4] for students	----------	1,812	1,427	1,520	2,947
Families [5]	3,194	1,143	774	953	1,727

[1] All respiratory affections exclusive of hay fever

[2] Rates are sums of actual rates for the weeks included in the respective 26 and 52 week periods.

[3] Also includes a group of Government employees.

[4] Arithmetic mean of rates, giving the same weight to each group, irrespective of its size.

[5] Case rates for the second year for which the families were observed were in 26-week periods: May 31, 1925–Nov. 28, 1925, 607 per 1,000 persons, Nov 29, 1925–May 29, 1926, 867 per 1,000 persons.

One of the most striking of the facts presented in this table is that, in each period, incidence was materially less among families than among the students. This difference is not satisfactorily accounted for by the special age distribution of the students, for Townsend and Sydenstricker (1927) have shown that, in these families, in 1924, the incidence at ages 15 to 34 was approximately the same as for all ages; nor does any difference in geographic distribution seem to be a sufficient explanation. A more probable assumption is that the higher incidence in students is due, at least in part, to the fact that their reports refer, in each instance, to the personal experience of the reporter, while the family records, except for the head of the household who made the report, refer to attacks suffered by persons other than the reporters, and, therefore, are perhaps less likely to include trivial attacks. However, the possibility is not excluded that conditions of student life, as aggregation for example, may be wholly or in part responsible for this high attack ratio.

Comparing the 10 student groups included in Table 1, the attack rates in each 26-week period are seen to be remarkably uniform, there being only two instances (Salt Lake City group, June 1 to November

29, 1924, and Washington group, November 30, 1924, to May 30, 1925) in which the attack rate in any group deviates by as much as 20 per cent from the mean rate for all groups in the same period. Considering the wide geographic dispersion of the localities represented, and their corresponding differences in climate, this uniformity of attack rate is one of the most interesting and significant facts brought out by these records, indicating that, in the prevalence of this group of disorders, climate is a factor of much less importance than would be supposed. Compared with this general fact of relatively uniform attack rates, the variations of incidence as between different localities are of much less clear significance, but are not altogether devoid of interest.

For the 52-week period June 1, 1924, to May 30, 1925, the highest attack rate is found in the South Hadley group and the lowest in the Washington group. Both of these groups are exceptional in their composition, that at South Hadley consisting entirely of female students, while the Washington group is made up chiefly of employees of Government offices, predominantly women, but of higher average age than university students. The higher incidence in the South Hadley group than in the students in other localities is consistent with the observation by Townsend and Sydenstricker (1927, their Table 11), that in the families reporting during 1924, the attack rate, in the age group 15–24 was slightly higher in females than in males. The lower attack rate in the Washington group is not accounted for by their higher age, according to the experience of Townsend and Sydenstricker. It may be, however, that it is related to conditions of life materially different from those of college students.

Among the remaining groups of students the highest attack rates for the year June, 1924–May, 1925, are at Salt Lake City, Berkeley, and Boston, and the lowest at Columbus and New Orleans, a geographic distribution which suggests no consistent relation of incidence to latitude or longitude. Moreover, the array of groups in order of attack rates is not closely similar in any two of the three 26-week periods which are recorded. Some suggestion of a consistent relationship to latitude is found in the fact that for both winter periods the attack rates in Boston and Chicago are higher than in the southernmost localities, New Orleans and Berkeley; but doubt is cast upon the significance of this fact when it is noted that similar differences in attack rates are observed between Chicago and Columbus, or between Baltimore and Washington, where the differences in latitude are small. On the whole, there is surprisingly little evidence of consistent differences between the several localities with respect to incidence rates.

Among the families for which the data cover two and a half years, the tendency is toward a declining rate for the same 6-month periods

of successive years. This is quite generally true for the student material also, Berkeley being the only exception. Possibly, however, this tendency is brought about by a slackening of interest in reporting the incidence of "colds," rather than by really lower attack rates in successive years.

Data for comparison with respect to attack rates in the student groups may be found in such studies as that reported by Howe (1924), who undertook a census of "colds" occurring during the major part of a college term in a group of students at Wellesley College. He reports 849 "colds" in a class of 367 persons during the period from October, 1919, to April, 1920. Reckoning the period as about 30 weeks, this corresponds to an average weekly rate of 77 per 1,000. This is somewhat higher than the mean weekly incidence rates of 69 and 59, observed in our student group during the winter periods of 1923–24 and 1924–25, respectively; but the differences are not very great, and it is to be noted that Howe's observations extend through the rather severe influenza epidemic of 1920. There are, moreover, a considerable number of other observations which indicate that annual attack rates ranging from 2,000 to 3,000 per 1,000 persons are not unusual in college and school populations.

For comparison with the records of our family group, data are available from a report by van Loghem (1928). His data, obtained by questionnaires sent weekly to more than 1,500 families in various localities in Holland, cover a period of 37 weeks, from September 14, 1925, to June 5, 1926. The attack rate for this period was 4,280 per 1,000, as compared with a rate of 1,260 per 1,000 in our families for precisely the same period. It is quite possible that the higher attack rate reported by van Loghem may be due in some measure to more zealous reporting and to inclusion in his records of more trivial attacks; but it is our opinion that such differences are not sufficient to account for so great a disparity in attack rates.[2]

TIME DISTRIBUTION IN BROAD AREAS

The distribution by weeks of reported cases, without distinction as to clinical type, is shown in Tables 2 and 3, which refer to students and families, respectively.[3] Figure 1, based on these tables, shows

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[2] Recently an intensive study of the respiratory disorders occurring in a group of about 100 families residing in Baltimore has been conducted in the department of epidemiology of the Johns Hopkins University School of Hygiene under the direction of one of us (W. H. F.) under conditions peculiarly favorable for obtaining prompt record of all attacks, even those of trivial character. During the 32 weeks from Oct. 21, 1928, to June 2, 1929, the total attack rate in this group was 2,408 per 1,000. It is reasonably certain that there is little, if any, deficiency in these records; but notwithstanding that they refer to the season of high prevalence, and include the period of a quite severe influenza epidemic, the mean weekly rate (91 per 1,000) is less than that reported by van Loghem. From this and various other facts noted in the collection of our records, we believe that the true "normal" morbidity rate in a representative family group in this country is decidedly less than that observed by van Loghem in Holland.

[3] These and later tables include all the student groups which reported throughout the 78 weeks, excepting the group in Baltimore.

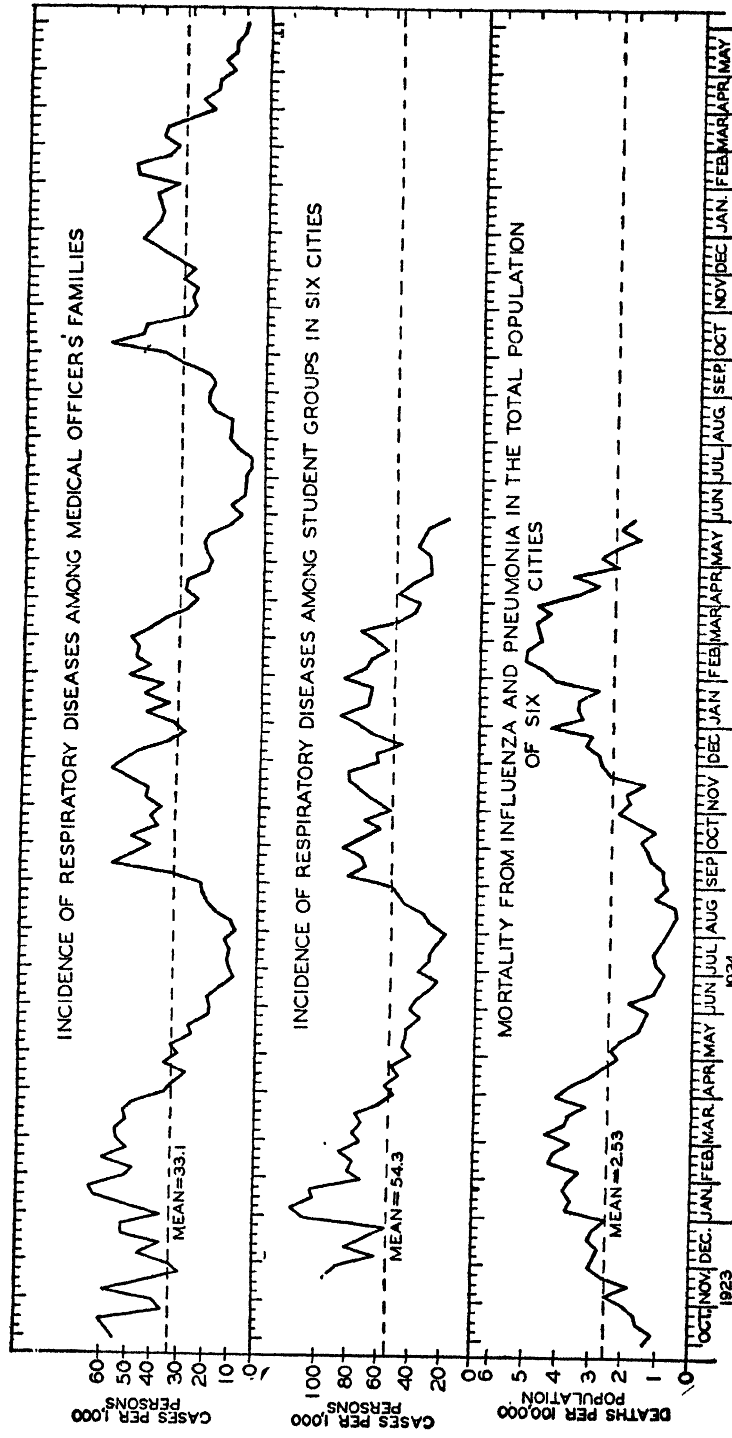

FIGURE 1.—Case incidence (weekly rates) of all respiratory affections, exclusive of hay fever, among the family and student groups, and mortality (weekly rates) from influenza and pneumonia in the total population of the six cities in or near which the student groups were located. (Means are for year ending June 6, 1925)

incidence rates in the student group as a whole and the family group during the respective periods of observation. If the mean rate of incidence for the year ending June 6, 1925, be taken as an axis, it is seen that in each group, in each year, the incidence rate is consistently below this mean from about April 1 to September 1, and consistently above this level from about September 1 to April 1.

Table 2.—*Incidence of respiratory diseases*[1] *among student groups, by weeks, October, 1923–June, 1925*

WEEKLY CASE RATES PER 1,000 PERSONS OBSERVED

Week ended—	Boston	Chicago	Columbus	Washington	Berkeley	New Orleans	Average of 6 groups[2]
1923							
Oct. 6				118.1		84.5	
Oct. 13				116.6		160.5	
Oct. 20	131.0			167.7		157.1	
Oct. 27	86.3			98.8		91.7	
Nov. 3	147.3			101.4		121.1	
Nov. 10	137.7		178.7	73.9		131.1	
Nov. 17	104.8	94.3	103.8	83.3		119.7	
Nov. 24	102.1	119.5	95.6	59.6	109.3	67.2	92.2
Dec. 1	112.9	120.9	90.2	56.2	68.3	55.7	85.5
Dec. 8	64.1	81.0	58.2	68.0	48.1	41.5	60.1
Dec. 15	117.4	131.9	50.2	69.8	41.3	74.8	80.9
Dec. 22	68.8	81.6	69.7	59.2	57.2	62.8	66.5
Dec. 29	65.8	65.3	47.1	57.4	49.3	47.5	55.4
1924							
Jan. 5	118.1	89.5	117.0	88.9	116.4	110.7	10[illegible].8
Jan. 12	116.1	92.5	147.7	116.4	81.3	143.1	11[illegible].2
Jan. 19	64.2	103.6	125.1	90.0	96.2	132.1	101.9
Jan. 26	[illegible]6.7	107.9	135.8	99.6	67.8	118.4	104.4
Feb. 2	81.5	71.9	56.6	61.9	65.0	87.5	70.7
Feb. 9	100.1	89.4	66.7	82.2	59.8	82.5	80.1
Feb. 16	[illegible]6.8	89.4	67.8	84.9	76.4	57.9	77.2
Feb. 23	102.1	98.1	85.2	91.3	61.9	68.8	84.5
Mar. 1	80.4	78.7	72.3	80.6	67.1	54.3	72.2
Mar. 8	65.1	99.8	78.0	78.5	53.6	85.9	76.8
Mar. 15	63.0	74.8	88.5	52.3	56.2	91.4	71.0
Mar. 22	77.3	83.1	79.4	74.5	62.3	74.6	75.2
Mar. 29	65.7	62.3	62.7	68.5	44.5	52.2	59.3
Apr. 5	51.1	65.7	51.7	47.4	48.5	42.2	51.1
Apr. 12	69.6	89.2	51.1	66.2	36.3	38.4	57.0
Apr. 19	59.3	89.2	37.9	31.5	49.1	22.0	48.2
Apr. 26	63.7	67.9	46.0	50.5	57.5	31.9	52.9
May 3	40.7	62.6	28.4	45.2	44.6	21.0	40.9
May 10	45.0	67.8	45.2	52.8	41.2	22.3	45.7
May 17	48.4	54.2	43.8	34.6	40.7	40.6	43.7
May 24	54.7	52.3	40.8	41.2	40.3	32.0	43.5
May 31	39.2	39.9	51.0	41.1	28.7	[3] 12.8	35.5
June 7	46.0	49.3	52.1	30.2	46.1	26.4	41.7
June 14	43.5	38.8	44.1	35.9	40.3	24.0	37.8
June 21	[3] 24.5	23.5	18.4	28.1	42.6	36.7	29.0
June 28	30.0	19.6	21.5	23.9	22.0	28.8	24.3
July 5	31.1	36.6	26.3	21.7	45.4	62.5	37.3
July 12	[3] 19.8	22.4	21.4	26.1	57.2	35.3	30.4
July 19	[3] 19.8	[3] 16.8	20.4	31.6	41.8	14.9	29.2
July 26	[3] 25.5	[3] 1[illegible].9	21.6	[3] 16.4	39.8	[3] 25.3	21.9
Aug. 2	[3] 11.3	[3] 16.9	20.3	[3] 14.3	41.8	[3] 16.9	20.3
Aug. 9	[3] 16.9	23.0	25.1	25.1	44.4	39.5	2[illegible].0
Aug. 16	[3] 25.4	31.4	41.1	37.4	58.7	[3] 11.3	34.2
Aug. 23	38.7	40.0	35.4	25.3	71.8	50.5	45.1
Aug. 30	60.8	31.6	50.1	40.0	85.4	32.7	50.1
Sept. 6	36.8	53.2	31.2	44.0	89.3	74.2	54.8
Sept. 13	64.4	119.2	75.5	73.9	97.8	62.3	82.2
Sept. 20	88.7	82.6	72.1	61.6	76.4	47.3	71.5
Sept. 27	142.6	75.2	40.2	74.9	58.8	47.4	73.2
Oct. 4	117.3	73.3	65.4	93.1	62.4	96.1	84.6
Oct. 11	61.9	80.6	64.5	76.9	69.0	84.1	72.8
Oct. 18	50.5	71.4	49.8	46.6	66.6	81.1	61.0
Oct. 25	57.5	87.2	60.0	52.0	72.9	105.0	72.4
Nov. 1	46.3	46.4	65.7	56.1	58.8	58.6	55.3

[1] All respiratory affections exclusive of hay fever.
[2] Arithmetic mean of rates, giving the same weight to each group, irrespective of its size.
[3] Rates are based on less than 10 cases.

TABLE 2.—*Incidence of respiratory diseases among student groups, by weeks, October, 1923–June, 1925*—Continued

WEEKLY CASE RATES PER 1,000 PERSONS OBSERVED—Continued

Week ended—	Boston	Chicago	Columbus	Washington	Berkeley	New Orleans	Average of 6 groups[2]
1924							
Nov. 8	58.2	58.3	58.5	59.7	104.1	53.1	65.3
Nov. 15	98.5	52.6	64.4	72.5	90.9	56.3	72.5
Nov. 22	110.6	76.3	96.1	42.8	95.6	72.8	82.4
Nov. 29	102.4	76.3	69.6	64.2	81.5	101.3	82.5
Dec. 6	49.3	75.2	71.4	45.1	52.7	90.6	64.1
Dec. 13	77.3	92.5	63.3	47.5	59.2	48.5	64.7
Dec. 20	53.2	48.8	51.1	45.3	58.6	33.2	48.4
Dec. 27	63.1	78.1	48.0	58.8	76.8	73.1	66.2
1925							
Jan. 3	88.0	68.4	55.1	63.2	79.0	99.7	75.6
Jan. 10	108.3	98.0	67.1	86.1	81.8	89.7	88.5
Jan. 17	83.3	72.5	78.2	68.4	68.4	53.2	70.7
Jan. 24	72.3	55.1	106.7	55.9	70.3	61.9	70.4
Jan. 31	75.6	53.1	68.1	69.4	60.5	82.5	68.2
Feb. 7	78.6	80.6	84.6	68.3	67.3	140.4	86.6
Feb. 14	90.6	54.4	56.8	54.7	76.4	102.7	72.6
Feb. 21	77.1	71.0	66.8	59.5	70.9	66.9	68.7
Feb. 28	94.2	71.0	73.2	34.8	49.2	[3] 24.6	57.8
Mar. 7	72.0	80.4	85.1	61.0	65.5	[3] 32.5	66.1
Mar. 14	96.1	109.3	67.9	61.0	80.0	39.7	75.7
Mar. 21	72.7	48.6	44.4	37.6	68.6	42.5	52.4
Mar. 28	57.1	35.9	42.2	23.7	56.7	39.0	42.4
Apr. 4	57.9	58.2	20.2	26.1	55.5	[3] 14.3	38.7
Apr. 11	56.1	64.7	32.5	43.4	61.6	57.1	52.6
Apr. 18	52.6	75.4	33.7	24.1	36.5	42.9	44.2
Apr. 25	40.8	34.6	26.1	24.3	41.4	[3] 25.3	32.1
May 2	37.2	62.6	19.3	24.2	29.6	[3] 21.7	32.4
May 9	34.2	46.8	34.7	27.8	33.6	[3] 18.4	32.6
May 16	52.2	49.0	49.7	37.9	34.4	[3] 14.7	39.7
May 23	44.7	37.3	54.6	[3] 16.1	43.2	[3] 26.9	37.1
May 30	46.5	28.0	44.9	26.9	40.5	[3] 15.4	33.7
June 6	29.8	[3] 23.1	21.2	[3] 5.4	30.3	[3] 14.0	20.6
Number of persons under observation:							
Maximum	1,019	802	1,800	620	2,681	618	
Minimum[4]	353	429	824	326	1,111	260	
Mean	668	575	1,208	485	1,746	393	

[3] Rates are based on less than 10 cases.
[4] The minimum number of persons under observation is for the summer vacation weeks.

TABLE 3.—*Incidence of respiratory diseases among members of medical officers' families, by weeks, October 1923–June 1926*

WEEKLY CASE RATES PER 1,000 PERSONS OBSERVED[1]

Week ended—	Total respiratory[2]	Coryza[3]	Influenza[4]	All other	Week ended—	Total respiratory[2]	Coryza[3]	Influenza[4]	All other
1923					**1923**				
Oct. 6	54.8	30.6	4.8	19.4	Dec. 8	45.6	33.1	.9	11.6
Oct. 13	57.9	33.1	1.4	23.4	Dec. 15	36.6	21.4	2.7	12.5
Oct. 20	60.8	31.1	1.2	28.5	Dec. 22	52.4	28.3	5.8	18.3
Oct. 27	35.8	16.7	1.2	17.9	Dec. 29	52.4	30.0	4.2	18.2
Nov. 3	39.0	19.5	3.4	16.1					
Nov. 10	60.2	35.0	4.4	20.8	**1924**				
Nov. 17	45.3	25.9	4.3	15.1	Jan. 5	36.4	12.1	3.6	20.7
Nov. 24	29.1	14.5	1.0	13.6	Jan. 12	50.6	30.3	5.4	14.9
Dec. 1	33.5	15.2	4.1	14.2	Jan. 19	63.2	25.7	6.4	31.1

[1] The number of total respiratory cases was above 20, and the number of coryza cases above 10, throughout the period. The rates for influenza are based on less than 10 cases from approximately May to December of each year. After the first 3 months, when enrollment was practically completed, the number of persons under observation each week varied from a maximum of 3,919 to a minimum of 2,951, the mean number of persons being, 3,194.
[2] All respiratory affections exclusive of hay fever.
[3] "Coryza" refers to cases reported as coryza or head cold as the sole diagnosis, cases reported as coryza and bronchitis, coryza and sore throat or coryza and any other diagnosis except influenza are included in "all other."
[4] "Influenza" includes all cases in which the diagnosis of influenza was reported regardless of other diagnoses reported for the same attack.

TABLE 3.—*Incidence of respiratory diseases among members of medical officers' families, by weeks, October 1923–June 1926*—Continued

WEEKLY CASE RATES PER 1,000 PERSONS OBSERVED—Continued

Week ended—	Total respiratory	Coryza	Influenza	All other
1924				
Jan. 26	65. 5	32 2	2. 6	30 7
Feb. 2	52. 0	29. 4	2 9	19. 7
Feb. 9	47. 9	22. 6	3 0	22 3
Feb. 16	60 5	29. 7	5. 0	25 8
Feb. 23	50 2	29 9	3 5	16 8
Mar. 1	54. 8	26. 6	6 3	21 9
Mar. 8	55. 7	31 1	4 7	19 9
Mar. 15	51. 3	25 8	5. 0	20 5
Mar. 22	52 1	23 1	6. 5	22 5
Mar. 29	47. 8	22 5	4 0	21 3
Apr. 5	35 2	19 0	3 2	13 0
Apr. 12	32 3	17 4	1 1	13 8
Apr. 19	27 1	11 9	2 2	13 0
Apr. 26	36 7	15. 6	5 5	15 6
May 3	30. 8	13 1	2 7	15 0
May 10	34 1	15 7	2 7	15 7
May 17	25 7	15 1	5	10 1
May 24	26 9	16 2	. 5	10 2
May 31	19. 7	10 2	5	9 0
June 7	18 8	7 8	1 1	9 9
June 14	19 3	9 4	1 1	8 8
June 21	15 2	7 7	1. 6	5 9
June 28	9. 9	5. 9	. 5	3 5
July 5	10 9	7 5	. 8	2 6
July 12	12 0	7 7		4 3
July 19	11. 7	5 3	. 3	6 1
July 26	13. 6	6 4	. 8	6 4
Aug. 2	8 8	5 0		3 8
Aug 9	11 1	5 8	. 3	5 0
Aug 16	16 9	10 6	. 5	5 8
Aug. 23	20 7	12 1	. 8	7 8
Aug. 30	22 6	11 5	8	10 3
Sept 6	23 2	12 5	1 0	9 7
Sept. 13	34. 5	19 6		14 9
Sept. 20	58 3	31 1	1 8	22 4
Sept. 27	50 4	30 4	2 6	17 4
Oct. 4	43 3	24 6	2 6	16 1
Oct. 11	50 7	31. 8	3 6	15 3
Oct 18	40 0	21 2	3 1	15 7
Oct 25	43 5	24. 5	4 1	14 9
Nov. 1	39 1	19 1	4 6	15 4
Nov. 8	45. 7	22 6	7 7	15 4
Nov. 15	44 2	22 6	7 2	14 4
Nov 22	51 3	25 9	8 2	17 2
Nov. 29	58 7	28 7	7 9	22 1
Dec. 6	53 7	26 6	11 0	16 1
Dec 13	48 6	25 8	7 9	14 9
Dec. 20	36 5	20 2	4 3	12 0
Dec. 27	30. 1	13 0	5 9	11 2
1925				
Jan. 3	34 7	16 6	6 6	11 5
Jan. 10	46 2	18 9	7 1	20 2
Jan. 17	36 5	12 6	8 0	15 9
Jan 24	46 8	23 0	7 5	16 3
Jan. 31	39 0	21 0	5 8	12 2
Feb. 7	53 0	17. 9	11 5	20 6
Feb. 14	44. 6	17 2	11 8	15. 6
Feb. 21	50 3	18 6	12 2	19 5
Feb. 28	49. 0	19. 9	9 1	20 0
Mar 7	52. 5	18 9	14 1	19 5
Mar. 14	45. 1	17 8	12 4	11 9
Mar. 21	39 7	15 8	11 4	12 5
Mar. 28	30. 6	14 8	6. 7	9. 1

Week ended—	Total respiratory	Coryza	Influenza	All other
1925				
Apr 4	26 2	10. 1	7 1	9 0
Apr 11	31 5	13. 7	6 7	11 1
Apr 18	31 2	14 1	4 0	13. 1
Apr. 25	22 5	10 7	2 3	9 5
May 2	21 5	10 4	2 0	9. 1
May 9	23 1	11 4	2. 0	9 7
May 16	21 4	14 4	. 7	9 3
May 23	22 4	9. 7	1 0	11 7
May 30	13 7	6 7	. 3	6. 7
June 6	10. 0	3 3	. 3	6. 4
June 13	14. 3	6 3	. 7	7 3
June 20	8. 3	5. 0	. 7	2 6
June 27	7 7	4 3	. 3	3 1
July 4	7. 7	4 0	. 7	3 0
July 11	6 3	2 3	. 3	3 7
July 18	6 0	4. 0		2. 0
July 25	11 3	7 0		4 3
Aug 1	14 6	8 3	1 0	5 3
Aug. 8	13 9	6. 0	2. 6	5 3
Aug. 15	14 2	6 6	2 3	5 3
Aug 22	20 5	9 9	3	10 3
Aug. 29	23 1	14 2	1 7	7. 2
Sept 5	22 7	15 8	2. 0	4 9
Sept 12	20 7	12. 8	2 0	5 9
Sept 19	22 9	13 1	2 0	7 8
Sept 26	32 6	22 5	2 3	7. 8
Oct 3	39 7	23 4	2 6	13 7
Oct 10	62 1	38 5	2. 3	21 3
Oct. 17	49 0	31 0	4 2	13 8
Oct 24	47. 9	29 6	2 2	16 1
Oct 31	31. 5	17 4	1. 6	12 5
Nov. 7	28 5	15 7	2 2	10 6
Nov 14	30 1	17 9	2 2	10 0
Nov. 21	27 8	15. 7	1 9	10. 2
Nov 28	33 6	15. 7	3 8	14 1
Dec 5	29 0	12. 7	2 9	13 4
Dec 12	35 7	17 5	2 2	16 0
Dec 19	41 6	21 9	4. 1	15 6
Dec 26	50 1	23 2	6 3	20. 6
1926				
Jan. 2	46 6	21 5	6. 7	18. 4
Jan 9	43 5	21 5	8 5	13. 5
Jan. 16	41. 7	17 6	7. 5	16 6
Jan. 23	43 5	18 8	7 6	17. 1
Jan. 30	44. 5	18 1	10 2	16. 2
Feb 6	35 2	10 2	16. 1	8. 9
Feb 13	51 7	14. 8	19 1	17. 8
Feb 20	53 0	17 4	18 1	17 5
Feb 27	39 8	17 1	12 2	10 5
Mar 6	36 2	13 8	14 5	7 9
Mar 13	42 1	14 5	15. 5	12 1
Mar 20	40 8	11 2	17 4	12 2
Mar 27	30 3	14. 5	7. 6	8 2
Apr 3	21 7	9 5	6 6	5 6
Apr 10	26 7	10 2	6 6	9 9
Apr 17	20 7	10 5	2 3	7 9
Apr 24	20 4	11. 5	2. 3	6 6
May 1	14 8	7 6	. 7	6 5
May 8	18 1	7 6	. 7	9. 8
May 15	14 2	7 9	. 7	5. 6
May 22	14 2	6 6	. 3	7 3
May 29	11 2	7 9		3 3
June 5	9. 5	5. 3	. 7	3. 5

During the season of low prevalence, April to August, inclusive, the incidence rates decline rather regularly to a minimum about the middle of July or the 1st of August, then increase as regularly. During the period of high prevalence, September to April, no such regularity of trend is seen. On the contrary, what is shown in the figure

is a series of peaks and depressions, quite irregular in their spacing and magnitude. Considering the numbers under observation and the fact that each "peak" represents an incidence rate which has been increasing consistently through several weeks, the major irregularities in the curves during the season of high prevalence clearly are not due to simple chance fluctuations.

Agreement is closer between data for the two groups during the same year than it is between different years in the same group. Thus, for the winter of 1923–24 both curves show a high incidence in January and a gradual decline during the remainder of the winter and spring, while in the following winter there are, in both curves, several high points followed by a decline in incidence, dropping as low as the yearly mean during the latter half of December.

In each year the respiratory illness rates in September, October, or November are high—in fact they are almost or quite as high as in the later months of the winter. It is noted, in passing, that this does not conform to the seasonal distribution of mortality from influenza and pneumonia (which constitutes about 85 per cent of the total respiratory mortality), which is low during the autumn months and rises gradually to a peak in January and February, with a gradual decline in the spring.

CORRESPONDENCE OF TIME DISTRIBUTION IN DIFFERENT LOCALITIES

The incidence rates shown in Figure 1 are based on surveys of groups made up of individuals widely dispersed throughout the United States. Hence it might be that the irregular peaks represent epidemics occurring at different times in different localities, obscuring a more regular trend for each more narrowly limited area. That this is not the case is shown by Figure 2 (based on Table 2), which gives weekly incidence rates in student groups in each of six localities—Boston, Chicago, Columbus, Washington, Berkeley, and New Orleans.

The characteristics of each of the curves are essentially the same as already described for the average curve. The tendency is, in each locality, to a series of epidemics, with a certain degree of underlying regularity both for different years for the same locality and among separate groups for the same year. All the curves are at a minimum in July, then rise gradually through August, and at some time in late August or early September reach a level above the yearly mean. From this time onward, the prevalence continues almost invariably above the yearly mean until some time in March. Generally, the season of high prevalence in each one of the six localities is from the middle of September to the middle of March, though it begins a week or two earlier in New Orleans and Berkeley, and ends earlier in

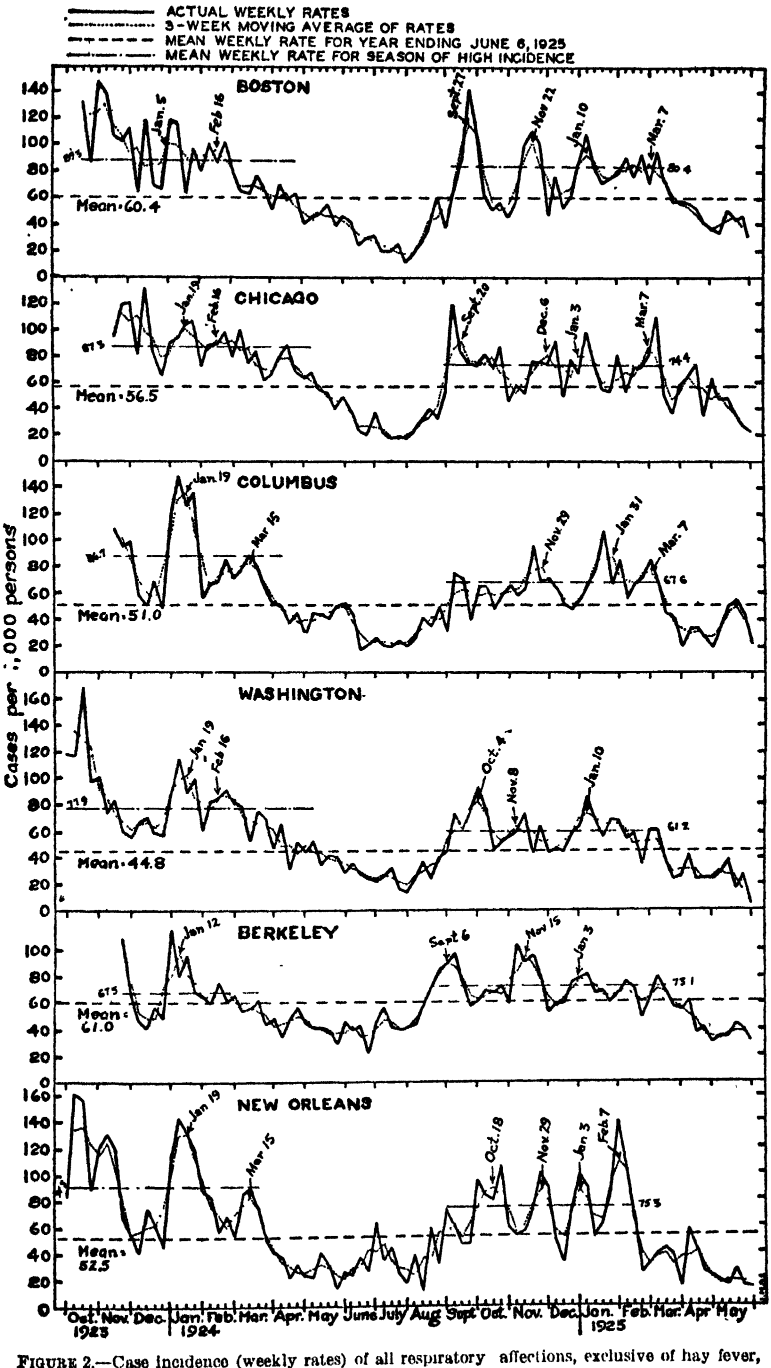

FIGURE 2.—Case incidence (weekly rates) of all respiratory affections, exclusive of hay fever, among college student groups reporting semimonthly to the United States Public Health Service, October, 1923, to May, 1925, in six cities. (Dates are ends of peak weeks)

New Orleans, about the middle of February. Considering that weather conditions in corresponding weeks vary widely as between these localities, the correspondence in seasonal distribution of respiratory disorders is remarkable.

TABLE 4.—*Periods during which incidence rates for all respiratory diseases were respectively above and below the yearly mean, for student and family groups*

City	Last week in spring of 1924 that weekly rate was above yearly mean	First week in autumn of 1924 that weekly rate was above yearly mean	Last week in spring of 1925 that weekly rate was above yearly mean	Number of weeks in summer of 1924 that weekly rate was generally below yearly mean	Number of weeks in winter of 1924-25 that weekly rate was generally above yearly mean
	Week ended—				
Boston	Apr 26, 1924	Sept 13, 1924	Mar 21, 1925	19	28
Chicago	May 10, 1924	Sept 13, 1924	Mar 14, 1925	17	27
Columbus	Apr 12, 1924	Sept 13, 1924	Mar 14, 1925	21	27
Washington	May 10, 1924	Sept 13, 1924	Mar. 14, 1925	17	27
Berkeley	Mar 22, 1924	Aug. 23, 1924	Mar. 21, 1925	21	31
New Orleans	Mar. 22, 1924	Sept 6, 1924	Feb 21, 1925	23	25
Family	May 10, 1924	Sept 13, 1924	Mar 21, 1925	17	28
Do.[1]		Oct 3, 1925	Mar. 20, 1926	27	25

[1] Reports from this group continued a year longer than those from the student groups.

Within the season of generally high prevalence, September to March, there is no well-defined tendency in any city to a smooth unimodal distribution of incidence rates. Rather, there is seen, in each city, the same series of irregularly alternating periods of increased and diminished prevalence which were noted in Figure 1. If an "epidemic" be broadly defined as a period of increased prevalence, then it may be said that the characteristic time distribution in the general season of high prevalence is a series of epidemics, each of several weeks' duration, and marked off by intervening periods of lowered prevalence.

Inspection of Figure 2 gives the impression that there is a considerable degree of correspondence between the different cities with respect to the time of occurrence of these epidemics—that they tend to be general rather than local. Thus, in each city there are more or less well-defined peaks in January, 1924; September or October, 1924; and November or December, 1924. As to other "epidemic periods," a time correspondence between the different cities is suggested, but is less obvious from the figure.

For a more exact comparison, freed from subjective impression, it is necessary to adopt some objective definition of an epidemic, and some procedure whereby its peak may be located. For the purposes of this determination an epidemic period is defined as "the time during which the attack rate, measured by a 3-week moving average, remains

above the mean attack rate for the high-prevalence season." The peak is taken as the highest point in this moving average. The seasons of high prevalence are defined in each locality in Table 4. For 1923–24 the high season as used starts with the beginning of the record in October or November, 1923.

In each locality the 3-week moving average of incidence rates during the high prevalence season oscillates about the mean seasonal level, usually remaining above it for several weeks, then falling below for somewhat shorter periods, so that, by the definition given above, we have a succession of epidemics objectively determined. With some exceptions, these epidemics are failry symmetrical, so that the peak or mode in the moving average corresponds approximately to the midpoint in time.

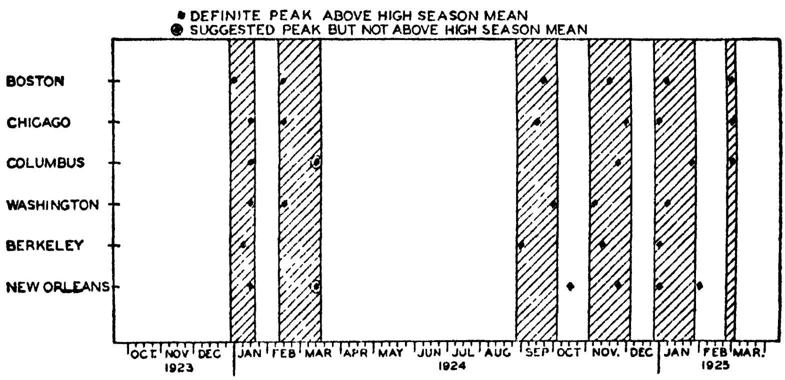

FIGURE 3.—Dates of occurrence of successive peaks in the incidence of respiratory affections in the six student groups, 1924-25 (See text and fig. 2 for method of determining dates)

The dates of occurrence of epidemic peaks as thus defined are shown in Figure 2, and are summarized in Table 5. A more compact graphic representation is given in Figure 3, which shows, for each city, the date (week) of each of the peaks recorded in Table 5.

TABLE 5.—*Weeks* [1] *of occurrence of successive peaks in the incidence of respiratory diseases among student groups*

Boston	Chicago	Columbus	Washington	Berkeley	New Orleans
Week ended—					
Jan. 5, 1924	Jan. 19, 1924	Jan 19, 1924	Jan 19, 1924	Jan 12, 1924	Jan. 19, 1924
Feb 16, 1924	Feb. 16, 1924	Mar. 15, 1924 [2]	Feb 16, 1924		Mar. 15, 1924 [2]
Sept. 27, 1924	Sept. 20, 1924		Oct 4, 1924	Sept. 6, 1924	Oct 18, 1924
Nov. 22, 1924	Dec. 6, 1924	Nov 29, 1924	Nov 8, 1924	Nov. 15, 1924	Nov. 29, 1924
Jan. 10, 1925	Jan. 3, 1925	Jan 31, 1925	Jan. 10, 1925	Jan 3, 1925	Jan 3, 1925
Mar. 7, 1925	Mar. 7, 1925	Mar 7, 1925			Feb. 7, 1925

[1] See text for method of determining dates of peaks
[2] This peak does not meet all the requirements as defined in the text, but at this date a peak is definitely suggested.

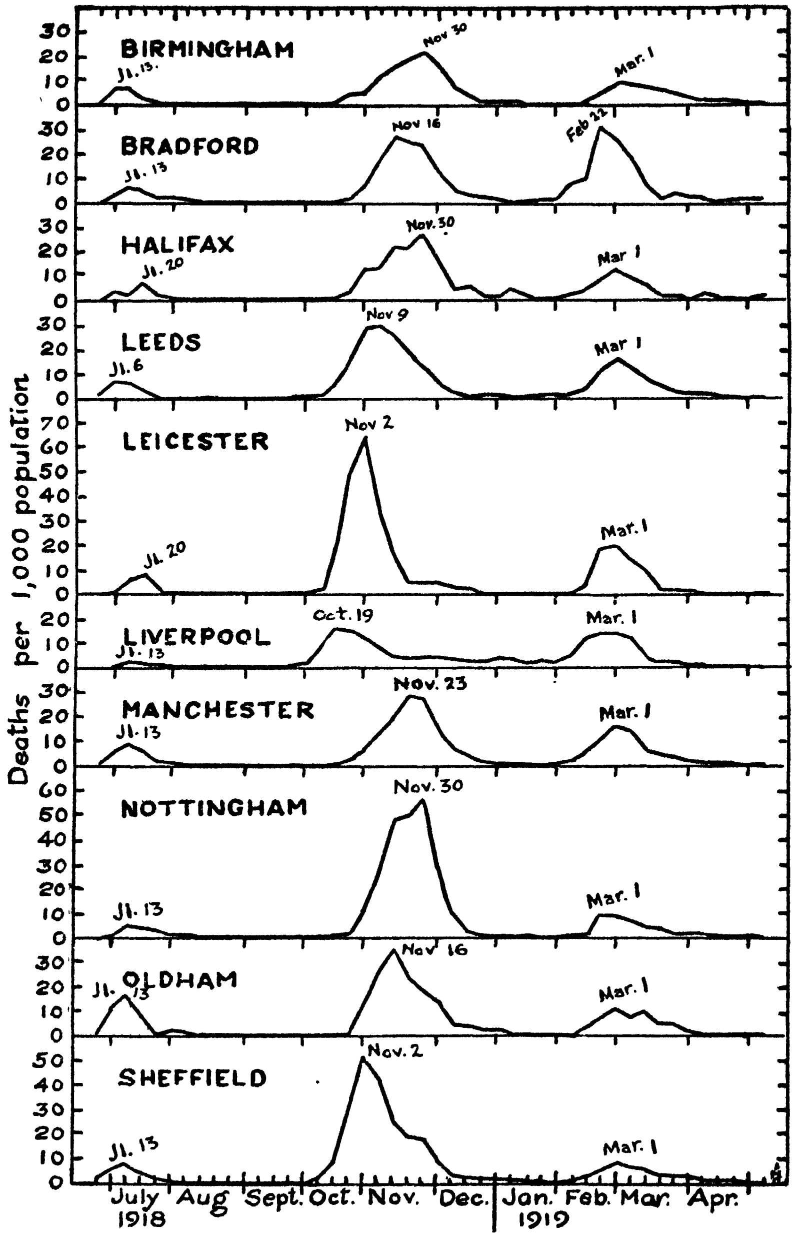

FIGURE 4.—Weekly death rates (annual basis) from influenza in several English cities during the three successive waves of the 1918–19 epidemic. (Dates are ends of peak weeks)

It is clear, from this figure, that the epidemics in the different cities occurred almost exclusively in six periods or time zones, which are indicated in the figure by shaded areas. There are 4 periods, of 3 to 5 weeks' duration, in each of which distinct "epidemic peaks" occurred in 4 or more of the 6 cities. There is a fifth period of 5 weeks (February 10 to March 16, 1924) when distinct "epidemics" occurred in 3 cities, while 2 of the remaining 3 showed fairly definite peaks which failed, however, to rise above the high-season mean, and consequently do not fall within the definition of "epidemic" which has been adopted. In the sixth period of a single week (week ended March 7, 1925) distinct epidemics occurred in Chicago and Columbus, with a minor peak in Boston. Only two distinct peaks, both in New Orleans, occur outside of the six time zones indicated on Figure 3.

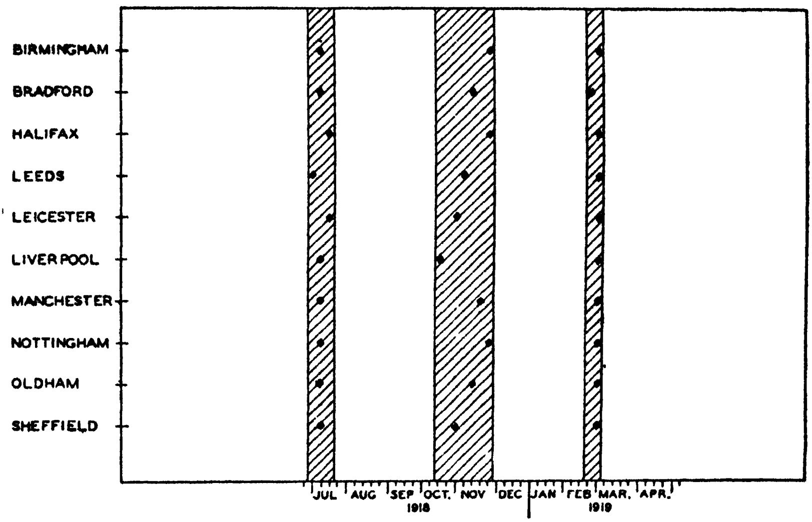

FIGURE 5.—Dates of occurrence of successive peaks in the mortality from influenza in several English cities during the three waves of the 1918–19 epidemic

The six cities under observation are widely separated, they differ greatly in climate, and, in each city, the epidemics are somewhat irregularly spaced. It is truly remarkable that in the presence of all these variables there should be such close correspondence between the cities with respect to the time of occurrence of the epidemics.

The analogy which suggests itself is with epidemic influenza, which characteristically occurs over a wide area at nearly the same time. For comparison with the record of common colds, Figures 4 and 5 are exhibited, showing the time correspondence between various English cities in the occurrence of successive peaks of epidemic influenza between June, 1918, and March, 1919, as indicated by weekly records of mortality. (Report of the Registrar General for England and Wales, 1918.)

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As a further illustration of the similarity of the time relations observed in common colds to those observed in epidemic influenza, Figure 6 is introduced, showing, for the six cities which are included in this study, the dates of successive peaks in excess mortality from influenza and pneumonia from October, 1918, to March, 1920.

PREVALENCE AND TIME DISTRIBUTION OF DIFFERENT CLINICAL GROUPS OF RESPIRATORY DISEASE

The discussion, to this point, has referred to attack rates from all forms of respiratory disorders, without regard to any clinical subdivision. The cases included were reported, however, under several different diagnoses, chiefly "cold in head" with or without complications, "influenza," "bronchitis," and "sore throat." It is well understood that the various designations under which cases were reported make a very crude basis for clinical differentiation, yet Townsend and Sydenstricker (1927) have shown that cases classified in this way actually show certain consistent differences as regards symptomatology, age selection, and seasonal distribution. It has seemed worth while, therefore, to ascertain, from this larger material, the characteristic seasonal distribution of the more prominent clinical groups of cases.

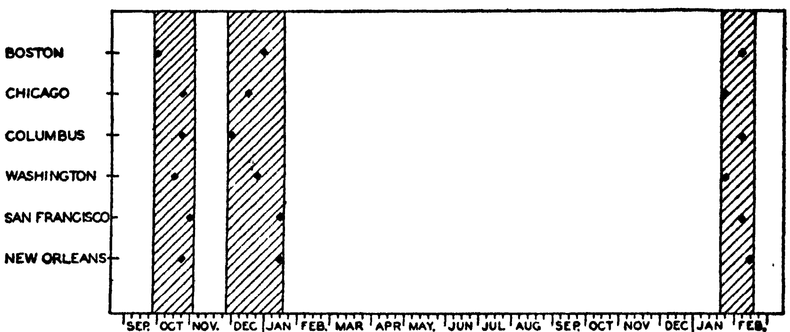

FIGURE 6.—Dates of occurrence of successive peaks in the excess mortality from influenza and pneumonia during the epidemics of 1918–1920 in the six cities in or near which the student groups were located

Table 6 shows, for each of the six student groups, the incidence, week by week, of cases reported as influenza. Table 3 gives corresponding weekly incidence rates of influenza in the family group, with a subdivision of the remaining cases into "coryza" and "all other."

TABLE 6.—*Incidence of influenza [1] among student groups, by weeks, October, 1923–June, 1925*

WEEKLY CASE RATES PER 1,000 PERSONS OBSERVED [2]

Week ended—	Boston	Chicago	Columbus	Washington	Berkeley	New Orleans	Average of 6 cities [3]
1923							
Oct. 6	-----	-----	-----	7.1	-----	-----	-----
Oct. 13	-----	-----	-----	-----	-----	1.7	-----
Oct. 20	1.5	-----	-----	-----	-----	3.2	-----
Oct 27	-----	-----	-----	4.1	-----	3.3	-----
Nov. 3	1.5	-----	-----	-----	-----	-----	-----
Nov 10	1.0	-----	1.6	4.0	-----	3.2	-----
Nov 17	2.0	2.2	1.5	-----	-----	6.5	-----
Nov 24	2.0	3.0	1.4	2.0	1.1	-----	1.6
Dec. 1	2.0	5.9	.7	5.8	2.3	-----	2.8
Dec. 8	-----	-----	.8	1.9	2.2	-----	.8
Dec. 15	6.9	4.5	2.4	-----	-----	3.3	2.9
Dec. 22	1.0	5.9	.9	3.9	2.3	1.7	2.6
Dec. 29	1.0	-----	1.8	2.0	1.1	-----	1.0
1924							
Jan 5	1.0	1.5	3.1	-----	4.5	1.7	2.0
Jan. 12	1.0	4.5	3.8	3.9	3.0	5.1	3.5
Jan 19	1.0	5.8	2.2	5.9	1.6	3.4	3.3
Jan 26	2.0	2.9	5.7	6.2	.8	3.4	3.5
Feb 2	-----	5.8	1.7	3.9	3.2	6.9	3.6
Feb. 9	3.1	8.4	2.2	5.9	2.5	3.5	4.3
Feb. 16	1.0	9.8	1.7	-----	1.7	5.3	3.3
Feb. 23	4.1	7.7	3.5	4.0	1.6	1.8	3.8
Mar. 1	2.1	5.2	.6	-----	3.6	3.6	2.5
Mar. 8	4.2	8.7	.7	2.0	3.8	3.6	3.8
Mar. 15	2.1	1.2	3.7	2.0	.9	3.7	2.3
Mar. 22	3.2	3.9	3.1	2.1	4.0	1.8	3.0
Mar. 29	1.1	5.2	1.3	-----	1.8	3.7	2.2
Apr. 5	1.1	1.3	2.6	1.7	3.6	7.7	3.0
Apr. 12	5.4	-----	-----	5.2	2.6	-----	2.2
Apr. 19	3.3	2.6	-----	3.3	.5	-----	1.6
Apr. 26	-----	2.6	1.3	1.7	2.5	-----	1.3
May 3	-----	1.3	-----	1.6	.5	-----	.6
May 10	-----	-----	-----	-----	-----	-----	-----
May 17	-----	2.7	.7	1.6	1.8	2.0	1.5
May 24	-----	-----	.7	5.1	1.0	2.1	1.5
May 31	-----	1.4	-----	1.7	.5	-----	.6
June 7	-----	3.5	.7	-----	1.9	-----	1.0
June 14	-----	3.5	1.4	-----	.5	-----	.9
June 21	2.7	-----	-----	-----	1.4	-----	.7
June 28	-----	-----	-----	2.0	-----	2.6	.8
July 5	2.8	-----	8	2.0	.5	-----	1.0
July 12	-----	-----	-----	2.0	3.0	-----	.8
July 19	-----	-----	-----	-----	1.5	2.8	.7
July 26	2.8	-----	.8	-----	1.0	-----	.8
Aug. 2	-----	-----	.8	-----	1.5	-----	.4
Aug. 9	-----	-----	-----	-----	1.1	2.8	.7
Aug. 16	-----	-----	8	-----	1.7	-----	.4
Aug. 23	-----	-----	-----	-----	2.7	-----	.5
Aug 30	2.8	-----	1.7	-----	.5	-----	.8
Sept. 6	2.3	-----	1.7	2.1	4.0	3.0	2.2
Sept 13	2.3	2.1	.9	2.1	.5	3.0	1.8
Sept. 20	-----	1.9	4.5	-----	1.8	3.0	1.9
Sept. 27	5.2	7.3	.9	-----	3.5	-----	2.8
Oct. 4	3.3	1.9	1.8	2.0	.6	-----	1.6
Oct. 11	-----	7.3	-----	-----	3.6	3.0	2.3
Oct. 18	1.6	3.7	.9	-----	3.6	3.0	2.1
Oct 25	1.6	3.7	.9	2.1	1.8	9.3	3.2
Nov 1	3.2	1.8	1.9	-----	2.5	3.1	2.1
Nov 8	9.7	3.7	2.9	10.7	4.6	6.2	6.3
Nov. 15	11.3	-----	2.0	6.4	2.0	3.1	4.1
Nov. 22	14.6	7.6	6.9	2.1	5.1	3.2	6.6
Nov 29	13.0	1.0	2.0	8.5	1.3	-----	4.5
Dec. 6	8.2	1.9	4.0	6.4	3.3	-----	4.0
Dec 13	9.9	1.9	2.0	-----	-----	-----	2.3
Dec. 20	6.7	5.9	2.0	2.2	1.4	3.3	3.6
Dec. 27	-----	5.9	2.0	2.2	4.1	3.3	2.9
1925							
Jan. 3	3.3	-----	1.0	2.2	2.7	6.7	2.7
Jan. 10	8.3	3.9	4.0	6.6	4.0	-----	4.5

[1] All cases in which the diagnosis of influenza was reported regardless of other diagnoses reported for the same attack.
[2] Practically all rates for individual cities are based on less than 10 persons. See Table 2 for number of persons under observation.
[3] Arithmetic mean of rates, giving the same weight to each group, irrespective of ts size.

TABLE 6.—*Incidence of influenza among student groups, by weeks, October, 1923–June, 1925*—Continued

WEEKLY CASE RATES PER 1,000 PERSONS OBSERVED—Continued

Week ended—	Boston	Chicago	Columbus	Washington	Berkeley	New Orleans	Average of 6 cities
1925							
Jan. 17	6.7	7.8	4.0	2.2	4.0	---	4.1
Jan 24	11.8	2.0	7.1	2.2	8.5	10.3	7.0
Jan. 31	15.1	---	2.0	2.2	8.5	30.9	9.8
Feb. 7	3.4	16.1	5.1	4.6	9.8	58.2	16.2
Feb 14	12.0	---	3.1	2.3	9.1	41.1	11.8
Feb. 21	18.9	16.2	8.5	6.9	18.1	35.2	17.8
Feb. 28	10.3	14.2	11.7	---	7.2	10.5	9.0
Mar. 7	3.4	12.4	23.7	2.3	11.5	10.8	10.7
Mar. 14	8.6	10.3	21.6	2.3	10.1	14.4	11.2
Mar. 21	3.5	8.4	12.2	---	4.0	3.5	5.8
Mar. 28	3.5	---	7.8	---	4.0	---	2.5
Apr. 4	7.0	8.6	3.4	7.1	6.1	---	5.4
Apr 11	14.0	8.6	4.5	---	2.3	---	4.9
Apr. 18	3.5	6.5	---	4.8	1.5	---	2.7
Apr 25	1.8	---	1.1	---	8.1	7.2	2.2
May 2	---	2.2	---	---	1.5	3.6	1.2
May 9	---	4.5	2.3	---	5.7	---	2.1
May 16	---	2.2	1.1	2.5	---	3.7	1.6
May 23	1.9	---	1.2	---	.9	---	.7
May 30	1.9	2.3	1.2	---	.9	3.9	1.7
June 6	2.3	---	1.5	2.7	1.8	---	1.4

It is evident, from inspection of the original records, that the clinical groups distinguished in Tables 3 and 6 overlap quite broadly, and that the assignment of two or more cases to different groups may often be determined by the reporter's choice of different words to describe similar phenomena rather than by any clearly defined clinical differences. For instance, a case exhibiting the symptoms of rhinitis, cough, sore throat, fever, and aching might be recorded by one reporter as a "cold," without other designation (but with a record of symptoms), and by another as "cold, bronchitis, and sore throat," and by a third as "influenza," so that it might fall into any one of the three classes. Nevertheless, according to Townsend and Sydenstricker's analysis, these classes, taken as groups, differ from each other materially. The cases designated coryza consist chiefly of those in which the most prominent symptom is acute rhinitis, with relatively rare occurrence of cough, sore throat, fever, and other toxic symptoms. The influenza group comprises chiefly cases marked by toxic symptoms—fever, prostration and aching—along with coryza, cough, and sore throat. The group of "all other" cases is more heterogeneous, and differs less sharply from coryza on one side and influenza on the other. Consequently, for epidemiological study, interest centers chiefly on influenza, as representing the most severe cases, and on comparisons of this class with the most strongly contrasting group, coryza.

Table 7 shows the reported incidence of so-called influenza in successive 26-week periods in the student group in each of six cities, in the student group as a whole, and in the family group. The lower

section of the table shows, for each period and each group, the percentage which the influenza cases are of all the reported respiratory diseases.

TABLE 7.—*Actual and proportionate incidence of influenza*[1] *in student and family groups in successive 26-week periods*

CASE RATES[2] PER 1,000 PERSONS OBSERVED

26-week period	Students							Families
	Boston	Chicago	Columbus	Washington	Berkeley	New Orleans	Average[3] 6 groups	
Dec. 2, 1923–May 31, 1924	44.6	92.9	44.5	65.6	51.6	64.3	60 7	91.4
June 1, 1924–Nov. 29, 1924	79.2	49.9	34.3	42 0	52.2	48.1	51.0	63.0
Nov. 30, 1924–May 30, 1925	163.7	141.8	136.6	59.0	132.3	246 6	146.9	182.4
May 31, 1925–Nov. 28, 1925								42 2
Nov. 29, 1925–May 29, 1926								196 7
PER CENT OF ALL RESPIRATORY CASES THAT WERE DESIGNATED AS INFLUENZA								
Dec. 2, 1923–May 31, 1924	2.3	4.5	2.5	3.8	3.5	3.9	3.3	8.0
June 1, 1924–Nov. 29, 1924	5.5	3.8	2.8	3.6	3.1	3.5	3.6	8.1
Nov. 30, 1924–May 30, 1925	9.5	8.6	9.4	4.9	8.7	18.2	9.7	19.1
May 31, 1925–Nov. 28, 1925								7 0
Nov. 29, 1925–May 29, 1926								22.7

[1] All cases in which the diagnosis of influenza was reported regardless of other diagnoses reported for the same attack.
[2] Rates are sums of actual rates for the weeks included in the respective 26-week periods.
[3] Arithmetic mean of rates, giving the same weight to each group, irrespective of its size.

It is noted in this table that, in each period, the incidence of influenza is higher in the family group than in the student group as a whole, whereas the reported incidence of all respiratory diseases (see Table 1) is materially higher in the student than in the family group. It follows that influenza furnishes a larger proportion of all reported cases in families than in students, and this is seen to be the case in every period covered by records for both groups.

The higher absolute and relative incidence of so-called influenza in the family group than in students might be taken to represent merely a greater inclination toward this diagnosis on the part of those who reported for the families—mostly physicians. However, Townsend and Sydenstricker (1927) found that in families reporting during 1924 the absolute and proportionate incidence of influenza was materially lower in the age group 15–24 than at all ages. The pertinent data, from their Table 11, are as follows:

Age group	Incidence per 1,000		Per cent which influenza cases are of total
	All respiratory diseases	Influenza	
All ages	2,000	183.3	9.1
15–24	1,377	81.8	5.9

The fact that in the present study the incidence of influenza is absolutely and relatively lower in students than in the family group appears, then, to be at least in part an expression of the special age selection of influenza, and to be not inconsistent with a higher total incidence of respiratory diseases in the students.

It was noted, in the discussion of Table 1, that, in any given period, the total incidence of respiratory diseases varied remarkably little as between the six student groups. This can not be said of influenza. In each period the highest of the six attack rates is more than double the lowest rate. Also, comparing the two corresponding seasonal periods, December–May, 1923–24, and December–May, 1924–25,

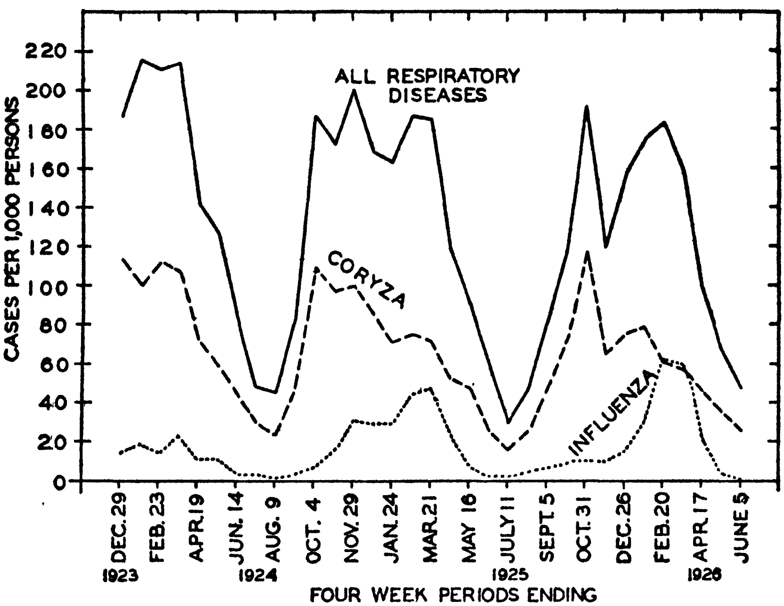

FIGURE 7.—Case incidence, in 4-week periods, of all respiratory affections, of coryza, and of influenza, among the families of medical officers, 1923–1926

the incidence of influenza is much greater in the second than in the first period. Hence influenza is distinctly more variable in its occurrence than is the broad group comprising all respiratory diseases.

It was also shown in Table 1 that in the successive winter and spring seasons (December–May) covered by the records the reported incidence of respiratory disorders progressively declined, both in the students and in the families. In contrast to this, the recorded incidence of influenza was twice as high in the period December–May 1924–25, as in the corresponding period of 1923–24. In the family group, for which the record extends through another year, the incidence of inflenza was still further increased in the winter and spring of 1925–26. Thus, from the winter of 1923–24 to that of 1925–26,

while the total incidence of respiratory diseases tended to become progressively less, the severity of the disorders tended to increase, as indicated by an increasing proportion of the more severe type of cases, reported as influenza.

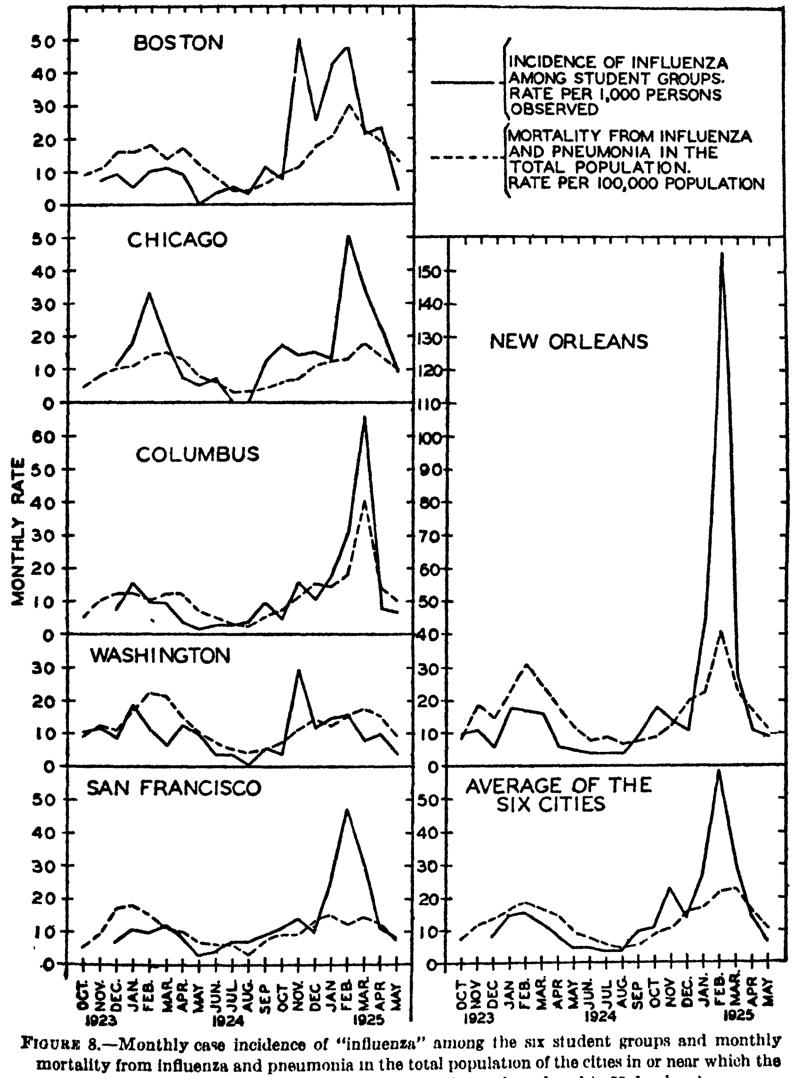

FIGURE 8.—Monthly case incidence of "influenza" among the six student groups and monthly mortality from influenza and pneumonia in the total population of the cities in or near which the student groups were located, 1923-1925. (Rates for all months reduced to 30-day base)

Figure 7 shows, by 4-week intervals, from December 1, 1923, to May 15, 1926, the incidence, in families, of "all respiratory diseases," "coryza," and "influenza," respectively. From this graph it is apparent that in each year for which there is a full record (1924-25 and 1925-26) coryza reached the height of its prevalence in September,

or October, and declined with fair regularity through the winter, while influenza followed a quite different course, increasing steadily through the autumn and early winter to a peak in February or March. In the winter of 1923–24, when the reported prevalence of influenza was low, the time distributions of both influenza and coryza were more irregular, and the two were not in sharp contrast. However, in this year records are lacking for September and October.

For 1924–25 and 1925–26 the autumnal epidemics shown in the curve for all respiratory diseases correspond to the peaks in the incidence of coryza, while the late winter epidemics coincide with the peaks in the incidence of influenza. A peak in the curve for all respiratory diseases in the four weeks ended November 29, 1924, corresponds to a less well-defined increase in the incidence of both coryza and influenza. Thus, to the extent that they comprise different proportions of crudely differentiated clinical types, the successive epidemics of respiratory diseases observed in the course of each year differ from each other in a qualitative way.

Figure 8 shows, for each of the six student groups, the incidence, in monthly periods, of reported influenza, and, in the same periods, the mortality from influenza and pneumonia in the population of the large city in or near which the student group is located. The rates are shown in Tables 8 and 9.

TABLE 8.—*Incidence of influenza* [1] *among student groups, by months, October, 1923–May, 1925*

CASE RATES [2] PER 1,000 PERSONS OBSERVED

Month	Boston	Chicago	Columbus	Washington	Berkeley	New Orleans	Average of 6 groups [3]
1923							
October				9.9		9.4	
November	7.4			11.0		9.7	
December	9.2	11.3	6.7	8.3	7.0	5.3	8.0
1924							
January	4.5	17.8	14.6	18.2	10.5	17.4	13.8
February	10.3	33.1	8.7	11.4	10.1	16.2	15.1
March	10.8	19.5	9.3	6.4	11.6	15.0	12.1
April	9.5	6.9	3.2	12.3	8.5	5.5	7.6
May		4.5	1.4	8.8	3.4	4.0	3.8
June	3.5	7.0	2.3	2.6	3.9	2.6	3.7
July	4.6		1.8	3.3	6.7	2.7	3.2
August	3.0		2.9	.3	6.8	3.1	2.7
September	10.9	12.1	8.5	4.8	9.5	8.6	9.1
October	7.5	16.7	4.4	3.1	11.1	17.4	10.0
November	50.2	13.7	14.6	28.6	13.8	12.9	22.4
December	24.7	14.8	9.7	10.7	9.6	10.1	13.4
1925							
January	41.9	13.3	16.9	13.6	25.4	42.7	25.7
February	47.8	49.8	30.4	14.8	47.4	155.4	57.6
March	21.3	33.7	64.6	7.4	31.2	27.8	31.0
April	23.3	21.6	7.5	8.9	11.5	9.8	13.7
May	4.0	9.3	5.8	2.8	7.9	8.3	6.4

[1] All cases in which the diagnosis of influenza was reported regardless of other diagnoses reported for the same attack.
[2] Rates reduced to 30-day base for all months
[3] Arithmetic mean of rates, giving the same weight to each group, irrespective of size.

TABLE 9.—*Mortality*[1] *from influenza and pneumonia in the total population of 6 cities, by months, October, 1923–May, 1925*

DEATH RATES[2] PER 100,000 POPULATION

Month	Boston	Chicago	Columbus	Washington	San Francisco	New Orleans	Average of 6 cities[3]
1923							
October	8.5	5.1	5.2	8.7	4.8	7.9	6.7
November	10 7	8 1	9 6	11.9	8.7	18 1	11.2
December	15 9	9.6	12 2	11.3	16.5	14.4	13.3
1924							
January	16 0	11.5	11.9	16 5	17.7	22.0	15.9
February	18.3	13 9	10.4	21.7	15.0	30.4	18.3
March	14.4	14.9	12.3	20 7	10.6	24 2	16.2
April	17.2	12.6	12.3	15.5	10.3	17.2	14.2
May	11.8	8.2	6 5	10.4	6.7	11.1	9.1
June	8.3	6.2	4.8	7.4	5.8	7.2	6.7
July	3.9	3.0	2 9	4.7	5 7	8.1	4.7
August	4.3	3.2	1.8	3.8	3.5	5.9	3.8
September	5.6	4.1	4 5	5.4	7.0	6.6	5.5
October	9.3	5.6	6.9	7.4	9.0	7.6	7.6
November	11.4	6.5	10.8	10.7	8 8	11 8	10.0
December	16.7	11.5	15.5	13.6	13.1	18.7	14.9
1925							
January	19 9	12 2	14.2	11 7	15.3	22.2	15.9
February	30.1	13.4	17.6	15.0	12.3	39.8	21.4
March	21.7	18.4	39.8	17 3	13 6	22.7	22.3
April	18.6	14.4	13 6	15.1	11 7	16.2	14.9
May	13.3	10.0	10 0	9.0	7.3	10.5	10.0

[1] Data from Mortality Statistics, U. S. Bureau of the Census.
[2] Rates reduced to 30-day base for all months
[3] Arithmetic mean of rates giving the same weight to each city, irrespective of size.

During the winter and spring of 1923–24, the incidence of influenza was comparatively low in every one of the groups, the highest attack rate being 33.1 per 1,000 in Chicago in February (rate expressed on 30-day basis.) In the other five cities the maximum attack rates in any month are all less than 20 per 1,000, and in different cities the peaks of incidence fall at different times, namely, in Washington, New Orleans, and Columbus, in January; in Chicago, in February; in Boston and Berkeley, in March.

In the second winter of the record, the prevalence of influenza was materially higher in all six groups[4]. As was found in the records for the families, so in the student groups, there were two distinct periods of increased or epidemic prevalence of influenza. The incidence curve for the Boston group shows both these epidemics as two distinct and approximately equal peaks, one occurring in November, 1924, and the other in February, 1925. Peaks corresponding to the November epidemic in Boston are shown distinctly in October and November, respectively, in the curves for the New Orleans and Washington groups with suggested but not clearly defined epidemics during one or both of these months in Chicago, Columbus, and Berkeley.

[4] In the Washington group the attack rate for the 6 months December–May, 1924–25 was *less* than in the corresponding period of 1923–24, but a high incidence of influenza occurred in November, 1924, making the incidence for the entire season, November–May, higher than in 1923–24.

The epidemic shown in Boston in February is clearly indicated, in either February or March, in all the other cities except Washington, where it is, at most, quite trivial.

As determined by 3-week moving averages computed from Table 6, the peaks of the autumn and winter epidemics of reported influenza, respectively, fell as follows in the several cities.

City	Week ended—	
Boston	Nov. 22	Feb. 21.
Chicago	Ill-defined	Feb 28.
Columbus	do	Mar. 14.
Washington	Nov. 15	Ill-defined.
Berkeley	Ill-defined	Feb. 28.
New Orleans	Nov. 1	Feb. 14.

In each of these epidemics there is a spread of four weeks between the times of occurrence of the earliest and the latest peaks. This represents about the same degree of time correspondence as has been shown (Table 5 and fig. 3) with respect to epidemics determined from the incidence of all respiratory diseases considered as a single composite group.

REPORTED PREVALENCE OF INFLUENZA IN RELATION TO MORTALITY FROM INFLUENZA AND PNEUMONIA

Analysis of statistics of mortality for numerous cities of the United States [5] shows that, corresponding to the increased prevalence of influenza reported from the six student groups for the winter of 1924–25, there was, during this winter, a quite general increase in mortality from influenza and pneumonia as compared with the winter of 1923–24. While this increase in mortality was quite general for the country, it was slight, and only in the West South Central States did the rates rise above the normal sufficiently to indicate an epidemic.

TABLE 10.—*Mortality from influenza and pneumonia and reported cases of influenza in six cities, for 6-month periods, December, 1923–May, 1925*

DEATH RATES FROM INFLUENZA AND PNEUMONIA PER 100,000 POPULATION [1]

Period	Boston	Chicago	Columbus	Washington	San Francisco	New Orleans	Average [2] of six cities
December, 1923–May, 1924	94.9	71.7	66.7	97.4	77.8	120.9	88.3
June, 1924–November, 1924	43.3	28.9	32.2	39.9	40.4	47.7	38.8
December, 1924–May, 1925	121.9	81.1	112.2	82.8	74.2	131.9	100.7

REPORTED INFLUENZA CASE RATES, PER 100,000 POPULATION [3]

Period	Boston	Chicago	Columbus	Washington	San Francisco	New Orleans	Average [2] of six cities
Dec. 2, 1923–May 31, 1924	10.9	17.6	(4)	8.9	15.3	28.6	16.3
June 1, 1924–Nov. 29, 1924	5.6	3.5	(4)	2.2	6.7	12.2	6.0
Nov. 30, 1924–May 30, 1925	43.6	32.2	(4)	6.8	36.7	79.9	39.9

[1] Data from Mortality Statistics, U. S. Bureau of the Census.
[2] Arithmetic mean of rates, giving the same weight to each group, irrespective of its size.
[3] Cases reported by attending physicians to the city health departments and published in the Public Health Reports.
[4] No data.
[5] Collins (1930); Collins, Frost, Gover, and Sydenstricker (1930).

Table 10 shows, in half yearly periods, the death rate from influenza and pneumonia in the total population of each of the six large cities containing or near to the six student groups. Of the six cities, two—Washington and San Francisco—showed no increase in influenza-pneumonia mortality in the six months December–May, 1924–25, as compared with the corresponding period of the preceding year. Each of the remaining four showed a slight but definite increase; but, as shown in the following summary, the extent of the increase in mortality in the several cities seems to bear no close relation to the increase in incidence of influenza among the student groups.

	Boston	Chicago	Columbus	New Orleans
Increase in incidence of influenza, December–May, 1924–25, as compared with same period, 1923–24—Cases per 1,000	119	49	92	182
Increase in mortality from influenza and pneumonia, December–May, 1924–25, as compared with same period 1923–24—Deaths per 100,000	27	9	46	11

Moreover, inspection of Figure 8 shows no striking parallelism between the curve of influenza incidence in the several student groups and mortality in the total population of the six cities in or near which the student groups are located.

SUMMARY

Data are presented on the incidence and certain epidemiological features of the minor respiratory diseases, as indicated by regular semimonthly reports rendered by rather large groups of students at several American universities in widely separated localities, and by similar reports from some 1,500 families. The students' reports cover 18 months, and the family reports extend through 2½ years.

For the year ended May 30, 1925, the mean attack rate in the 10 groups of student reporters was 2,947 per 1,000, an average of approximately three attacks per person. For the entire period, and for each of its major seasonal subdivisions, the attack rates in the several student groups were remarkably uniform, showing no consistent relation to latitude, longitude, or climate.

In the family group, the attack rates in corresponding periods were consistently lower than in the student groups, but it is possible that this may have been due wholly or in part to more complete reporting by the students.

Both in the student and the family groups, the attack rates in corresponding seasons of successive years (1923–1926) showed a declining trend. This may have been due, however, to progressive slackening of interest in reporting.

Taking the mean weekly attack rate throughout the year as an axis, the weekly attack rates in each group and in each year were

quite consistently below this level from about the first of April to the first of September, and generally above this level from September to March, inclusive. The minimum attack rates were observed usually in the latter half of July or the first half of August.

During the season of high prevalence, from September to March, inclusive, the incidence curve in each locality exhibited a series of oscillations, constituting a succession of epidemics, each of several weeks' duration, rather irregular in sequence and magnitude, but clearly not attributable to mere chance fluctuation.

These epidemics in six student groups in widely separated localities showed a striking time correspondence of about the same order as was observed in the influenza epidemics of 1918, 1919, and 1920.

Cases reported as influenza constituted about 5.6 per cent of the total reported from the student groups from December, 1923, to May, 1925, and about 11.7 of those recorded in the family group for the same period of 18 months.

While the gross attack rates from all the minor respiratory disorders tended generally to decrease throughout the period of observation, the reported incidence of so-called influenza tended to increase, being highest in the winter of 1925–26.

The seasonal distribution of cases reported as influenza differed from that of cases classed (clinically) as coryza, in that the latter reached their highest prevalence in the autumn, while the highest incidence of influenza occurred each year in the winter or spring months. Hence, the autumn epidemics observed each year differed from those observed in the late winter and spring in that the latter comprised larger proportions of cases classed as influenza.

The increased prevalence of so-called influenza observed in most of the student groups in the winter and spring of 1924–25 coincided generally with an increase in mortality from influenza-pneumonia in the cities represented. However, in individual cities the extent of the increase in mortality bore no obvious relation to that of the increase in prevalence of influenza.

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COURT DECISION RELATING TO PUBLIC HEALTH

Revocation by city board of health of permission to conduct a place for the keeping and slaughter of fowl upheld.—(Massachusetts Supreme Judicial Court; City of Revere *v.* Riseman et al., 181 N. E. 716; decided July 2, 1932.) On August 6, 1931, the board of health of the city of Revere prohibited the maintenance, on certain specified premises in the city, of a place for the keeping and slaughter of fowl. A month before the board had approved plans and specifications for a new modern building to replace a condemned building on such premises and construction had begun on the day of approval. The new building was completed on September 1, 1931, and one Riseman, who had since 1910 held a license to conduct a slaughterhouse on the said premises, continued to conduct a slaughterhouse there, notwithstanding the action of the board taken on August 6. In a suit brought by the city to enjoin the maintenance of a slaughterhouse on the premises specified, the supreme court, in affirming a decree for the city, stated in part as follows:

* * * the board of health of both city and town, by the provisions of R. L. c. 75, sec. 91, now G. L. c. 111, sec. 143, has express authority to revoke a permit to exercise, in a particular place, building, or otherwise, a trade or employment such as is described in G. L. c. 111, sec. 143. [Case cited.] It is manifest that an assignment of a place to exercise a trade or employment, such as is described in R. L. c. 75, sec. 91 (G. L. c. 111, sec. 143), does not create a vested right in the donee of the privilege granted and that a revocation of such a privilege does not deprive such a person of any constitutional rights. A donee of a privilege to exercise a trade or employment of the character described in R. L. c. 75, sec. 91 (G. L. c. 111, sec. 143) may rightfully be deprived of the enjoyment of such a

privilege whenever, in the opinion of the board of health, the continuance of such a trade or employment has become hurtful to the inhabitants, injurious to their estates, dangerous to the public health, or is attended by noisome and injurious odors. [Cases cited.] This is but an exercise of the police power, and the privilege granted may be assumed to have been accepted by the donee upon the understanding that such reserved power of revocation may be exercised by the board of health. The case at bar does not fall within the rule that a license once granted is not revocable unless the right to revoke is expressly or impliedly reserved. [Cases cited.]

DEATHS DURING WEEK ENDED AUGUST 13, 1932[a]

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Aug. 13, 1932	Corresponding week, 1931
Data from industrial insurance companies:		
Policies in force	71,360,353	74,988,817
Number of death claims	11,543	12,927
Death claims per 1,000 policies in force, annual rate	8.5	9.0
Death claims per 1,000 policies, first 32 weeks of year, annual rate	9.9	10.2
Data from 85 large cities of the United States:		
Total deaths	6,589	6,763
Deaths per 1,000 population, annual basis	9.4	9.8
Deaths under 1 year of age	542	654
Deaths under 1 year of age per 1,000 estimated live births [1]	44	51
Deaths per 1,000 population, annual basis, first 32 weeks of year	11.5	12.4

[a] The figures for the insurance companies and large cities published as for the week ended Aug. 8, 1932, on page 1782 of the public Health Reports for Aug. 26, 1932, were for the week ended Aug. 6, 1932.

[1] 1932, 81 cities; 1931, 77 cities.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended August 20, 1932, and August 22, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended August 20, 1932, and August 22, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Aug 20, 1932	Week ended Aug. 22, 1931	Week ended Aug 20, 1932	Week ended Aug 22, 1931	Week ended Aug 20, 1932	Week ended Aug 22, 1931	Week ended Aug. 20, 1932	Week ended Aug. 22, 1931
New England States:								
Maine [3]	3	5			3	5	1	0
New Hampshire		1				2	0	0
Vermont		3			2	2	0	0
Massachusetts	32	31	1	1	55	29	1	2
Rhode Island	1	1			1	16	0	0
Connecticut	4	2		3	17	6	0	0
Middle Atlantic States:								
New York	33	39	[1] 4		120	158	3	7
New Jersey	20	13	5		49	16	2	3
Pennsylvania	28	49			50	69	3	18
East North Central States.								
Ohio	16	19	3	2	19	13	0	0
Indiana	22	8	12	4	5	1	8	3
Illinois	39	36	11	4	22	39	5	6
Michigan	13	14			101	22	2	15
Wisconsin	7	12	13	7	21	32	2	1
West North Central States								
Minnesota	1	8	4	1	4	5	1	0
Iowa	6	4				2	0	0
Missouri	11	16			3	5	1	2
North Dakota	3	1				9	1	0
South Dakota	5	6			4	2	0	0
Nebraska	7	3				4	1	0
Kansas	6	5			16	2	2	1
South Atlantic States:								
Delaware					1		0	0
Maryland [2] [3]	13	11	3	2	5	3	0	0
District of Columbia		1	1			1	0	0
Virginia [3]	33				12		1	
West Virginia	17	7		2	61	21	1	0
North Carolina	26	31	11		35	9	0	1
South Carolina	9	6	89	100	7	12	0	6
Georgia [3]	22	8	31	9	20		1	1
Florida [3]	8			1	4		0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended August 20, 1932, and August 22, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Aug. 20, 1932	Week ended Aug. 22, 1931	Week ended Aug. 20, 1932	Week ended Aug. 22, 1931	Week ended Aug. 20, 1932	Week ended Aug. 22, 1931	Week ended Aug. 20, 1932	Week ended Aug. 22, 1931
East South Central States:								
Kentucky	24	16				12	1	1
Tennessee	9	19	20	18	2	3	3	3
Alabama [3]	29	17	8	2		12	2	2
Mississippi	14	31					0	1
West South Central States:								
Arkansas	12	1			4	1	0	0
Louisiana	18	21	9	2	1		1	1
Oklahoma [4]	27	25	19	3	2	1	2	0
Texas [3]	39	15	10	2	7		0	1
Mountain States:								
Montana	1	1			33	6	0	1
Idaho		1				2	0	0
Wyoming	1				2	2	0	2
Colorado	6	5				2	0	0
New Mexico	3	1					0	0
Arizona	1	2					0	1
Utah [3]				6	3	8	0	0
Pacific States:								
Washington	3	8			10	6	0	3
Oregon	1	7	12	6	24	5	0	0
California	27	49	70	8	24	29	1	6
Total	600	559	336	183	749	574	46	88

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Aug. 20, 1932	Week ended Aug. 22, 1931	Week ended Aug. 20, 1932	Week ended Aug. 22, 1931	Week ended Aug. 20, 1932	Week ended Aug. 22, 1931	Week ended Aug. 20, 1932	Week ended Aug. 22, 1931
New England States:								
Maine [3]	3	7	1	7	0	0	9	4
New Hampshire	0	7	4	1	0	0	1	1
Vermont	0	7	5	4	0	8	0	0
Massachusetts	4	115	67	74	0	0	6	3
Rhode Island	0	22	4	9	0	0	1	0
Connecticut	2	115	17	10	0	0	3	0
Middle Atlantic States:								
New York [1]	27	555	117	86	1	1	50	38
New Jersey	19	78	20	18	0	0	10	13
Pennsylvania	88	10	80	78	0	0	68	37
East North Central States:								
Ohio	1	2	62	61	1	6	58	34
Indiana	0	3	16	15	2	11	34	18
Illinois	5	36	51	60	2	8	53	26
Michigan	3	68	48	55	3	2	14	10
Wisconsin	2	26	8	17	0	0	1	5
West North Central States:								
Minnesota	8	31	10	22	1	3	1	7
Iowa	1	8	9	10	1	5	7	4
Missouri	0	3	11	11	1	1	23	18
North Dakota	1	2	1	0	1	2	4	6
South Dakota	1	0	2	8	0	4	2	1
Nebraska	1	0	13	2	1	3	0	1
Kansas	1	1	17	17	1	3	15	10
South Atlantic States:								
Delaware	0	0	1	1	0	0	3	3
Maryland [2, 3]	0	2	10	9	0	0	47	40
District of Columbia	0	2	2	6	0	0	1	2
Virginia [3]	3		26		0		40	
West Virginia	1	5	15	16	0	0	67	26
North Carolina	0	8	24	25	0	0	42	40
South Carolina	1	1	1	4	0	0	51	77
Georgia [3]	0	0	15	15	0	7	74	49
Florida [3]	0	0	2	1	0	0	4	5

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended August 20, 1932, and August 22, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Aug. 20, 1932	Week ended Aug. 22, 1931	Week ended Aug. 20, 1932	Week ended Aug. 22, 1931	Week ended Aug. 20, 1932	Week ended Aug. 22, 1931	Week ended Aug. 20, 1932	Week ended Aug. 22, 1931
East South Central States:								
Kentucky	2	4	54	6	0	0	120	47
Tennessee	1	1	20	34	1	5	81	112
Alabama [3]	0	4	22	11	0	0	36	47
Mississippi	0	0	12	14	0	7	20	41
West South Central States:								
Arkansas	1	0	6	0	0	3	24	45
Louisiana	1	0	9	12	1	0	35	69
Oklahoma [4]	0	0	6	13	1	1	83	19
Texas [3]	2	0	17	13	2	3	28	23
Mountain States;								
Montana	0	3	4	4	3	0	2	3
Idaho	0	1	1	3	1	0	0	1
Wyoming	2	0	1	2	1	0	0	0
Colorado	0	1	3	4	1	0	3	7
New Mexico	0	1	2	4	0	0	6	0
Arizona	0	0	1	2	0	0	1	5
Utah [2]	0	0	0	1	0	0	1	1
Pacific States:								
Washington	0	3	5	15	6	8	3	7
Oregon	0	0	3	6	8	9	3	7
California	6	3	42	36	5	8	12	18
Total	187	1,135	867	622	45	103	1,147	960

[1] New York City only.
[2] Week ended Friday.
[3] Typhus fever, week ended Aug. 20, 1932, 33 cases. 1 case in Maine, 1 case in Maryland, 1 case in Virginia, 7 cases in Georgia, 4 cases in Florida, 7 cases in Alabama, and 12 cases in Texas.
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
July, 1932										
California	12	139	116	6	318	5	17	178	28	45
Georgia	4	44	103	308	53	88	2	21	3	355
Maine	--------	11	--------	--------	230	--------	4	49	0	16
Minnesota	2	25	9	--------	106	--------	10	120	13	7
Missouri	5	107	2	43	91	2	6	121	--------	148
New Jersey	5	66	8	1	1,017	--------	12	217	0	28
New Mexico	2	25	--------	12	2	4	0	12	0	26
New York	16	228	--------	7	3,547	--------	19	884	31	95
North Carolina	8	67	73	--------	741	283	4	86	5	200
Ohio	6	92	26	4	733	1	14	327	19	153
Rhode Island	--------	11	2	--------	46	--------	1	60	0	2
West Virginia	2	86	11	--------	546	1	3	17	0	196
Wisconsin	7	30	50	--------	662	--------	7	66	1	18

July, 1932

	Cases
Chicken pox:	
California	521
Georgia	25
Maine	100
Minnesota	100
Missouri	45
New Jersey	171
New Mexico	12
New York	968
North Carolina	58
Ohio	248
Rhode Island	18
West Virginia	17
Wisconsin	285
Conjunctivitis:	
Georgia	2
Diarrhea and enteritis:	
Ohio	49
Dysentery:	
California (amebic)	10
California (bacillary)	26
Georgia	51
Minnesota (amebic)	3
Minnesota	2
New Mexico	1
New York	15
Ohio	16
West Virginia	15
Food poisoning:	
California	46
Ohio	18
German measles:	
California	27
New Jersey	36
New Mexico	1
New York	65
North Carolina	8
Ohio	5
Wisconsin	3
Granuloma, coccidioidal:	
California	1
Lead poisoning:	
New Jersey	2
Ohio	15
Leprosy:	
California	1
Lethargic encephalitis:	
California	6
Georgia	2
Minnesota	1
New Jersey	6
New York	6
Ohio	2
Wisconsin	1
Milk sickness:	
Ohio	4
Mumps:	
California	303
Georgia	32
Maine	5
Missouri	63
New Jersey	354
New Mexico	13
New York	858

[1] Exclusive of New York City.

Mumps—Continued.	Cases
Ohio	109
Rhode Island	18
West Virginia	1
Wisconsin	165
Ophthalmia neonatorum:	
California	2
New Jersey	2
New York	7
North Carolina	1
Ohio	111
Wisconsin	8
Paratyphoid fever:	
California	3
Georgia	4
New Jersey	1
New York	2
North Carolina	7
Ohio	6
Puerperal septicemia:	
New York	8
Ohio	3
Rabies in animals:	
California	25
Missouri	4
New Jersey	27
New York [1]	1
Rhode Island	1
Relapsing fever:	
California	1
Rocky Mountain spotted or tick fever:	
California	3
Septic sore throat:	
California	5
Georgia	18
Missouri	17
New York	16
North Carolina	12
Ohio	71
Rhode Island	1
Tetanus:	
California	4
Georgia	2
Maine	1
Minnesota	1
New Jersey	2
New York	6
Ohio	3
Rhode Island	1
Trachoma:	
California	21
Minnesota	2
New Jersey	7
New York	6
Ohio	1
Trichinosis:	
California	14
Maine	1
New Jersey	6
New York	6
Tularaemia:	
California	1
Georgia	1
Minnesota	5
Missouri	3
Wisconsin	154

Typhus fever:	Cases
Georgia	26
North Carolina	2
Undulant fever:	
California	14
Georgia	2
Maine	1
Minnesota	11
Missouri	35
New Jersey	1
New York	22
Ohio	21
Wisconsin	2
Vincent's angina:	
Maine	2
New York [1]	97

Whooping cough:	Cases
California	1,350
Georgia	89
Maine	59
Minnesota	206
Missouri	393
New Jersey	580
New Mexico	37
New York	1,549
North Carolina	1,020
Ohio	1,094
Rhode Island	49
West Virginia	211
Wisconsin	906

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 93 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 33,465,000. The estimated population of the 86 cities reporting deaths is more than 31,900,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended August 13, 1932, and August 15, 1931

	1932	1931	Estimated expectancy
Cases reported			
Diphtheria:			
46 States	600	553	
93 cities	159	205	348
Measles:			
45 States	902	894	
93 cities	316	232	
Meningococcus meningitis:			
46 States	36	69	
93 cities	18	32	
Poliomyelitis:			
46 States	161	1,040	
Scarlet fever:			
46 States	939	721	
93 cities	309	211	241
Smallpox:			
46 States	56	111	
93 cities	10	8	12
Typhoid fever:			
46 States	1,179	965	
93 cities	167	130	140
Deaths reported			
Influenza and pneumonia:			
86 cities	255	284	
Smallpox:			
86 cities	0	0	

[1] Exclusive of New York City.

City reports for week ended August 13, 1932

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded, and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1923 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	0	0	0	--------	0	0	0	1
New Hampshire:								
Concord	0	0	0	--------	0	0	0	0
Manchester	0	0	0	--------	0	0	0	0
Nashua	0	0	0	--------	0	0	0	0
Vermont:								
Barre	0	0	0	--------	0	0	0	0
Massachusetts:								
Boston	9	13	16	--------	0	22	17	11
Fall River	0	1	0	--------	0	0	0	0
Springfield	6	0	0	--------	0	6	0	0
Worcester	5	2	0	--------	0	5	1	4
Rhode Island:								
Pawtucket	0	0	0	--------	0	0	0	0
Providence	--------	3	--------	--------	--------	--------	--------	--------
Connecticut:								
Bridgeport	3	1	1	--------	0	6	0	0
Hartford	0	1	0	--------	0	1	0	1
New Haven	1	0	0	--------	0	0	0	0
MIDDLE ATLANTIC								
New York:								
Buffalo	2	6	0	--------	0	7	0	9
New York	32	87	47	1	1	77	37	50
Rochester	3	1	1	--------	0	1	3	1
Syracuse	2	1	0	--------	0	0	0	3
New Jersey:								
Camden	0	1	5	--------	0	0	0	1
Newark	3	7	1	1	0	15	7	5
Trenton	0	1	0	--------	0	7	1	3
Pennsylvania:								
Philadelphia	8	27	1	2	1	6	10	13
Pittsburgh	2	9	1	--------	0	4	1	10
Reading	1	0	0	--------	0	2	0	1
Scranton	1	--------	3	--------	--------	0	1	--------
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	0	2	2	--------	0	0	0	5
Cleveland	6	14	3	2	0	4	2	6
Columbus	0	2	4	--------	0	0	0	0
Toledo	2	2	1	2	0	4	0	3
Indiana:								
Fort Wayne	--------	1	--------	--------	--------	--------	--------	--------
Indianapolis	0	2	1	--------	0	0	6	2
South Bend	0	1	0	--------	0	0	0	0
Terre Haute	0	0	0	--------	0	0	0	0
Illinois:								
Chicago	27	44	5	1	0	18	4	18
Springfield	--------	0	--------	--------	--------	--------	--------	--------

City reports for week ended August 13, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—continued								
Michigan:								
Detroit	0	21	5		0	85	3	10
Flint	0	1	0		0	0	0	1
Grand Rapids	1	0	0		0	0	5	0
Wisconsin:								
Kenosha	0	0	0		0	0	0	0
Madison	1	0	0			0	2	
Milwaukee	13	6	1		0	1	1	0
Racine	1	1	0		0	1	2	0
Superior	2	0	0		0	0	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth	5	0	0		0	2	4	2
Minneapolis	2	7	0		2	1	1	1
St. Paul	1	3	0		0	1	1	3
Iowa:								
Des Moines	0	0	8	0		0	0	
Sioux City	0	0	0			0	0	
Waterloo	0	0	0			0	0	
Missouri:								
Kansas City	0	1	0		0	2	4	1
St. Joseph	0	0	0		0	0	1	2
St. Louis	3	11	7			1	0	2
North Dakota:								
Fargo	2	0	0		0	0	0	0
Grand Forks	0	0	0			0	0	
South Dakota:								
Aberdeen	0	0	0			0	0	
Nebraska:								
Omaha	0	2	2		0	0	0	1
Kansas:								
Topeka	3	1	1		0	1	0	0
Wichita	0	0	0		0	0	0	1
SOUTH ATLANTIC								
Delaware:								
Wilmington	0	0	0		0	1	0	1
Maryland:								
Baltimore	6	7	3	1	0	3	12	11
Cumberland	0	0	0		0	0	0	2
Frederick	0	0	0		0	0	0	0
District of Columbia:								
Washington	3	5	2	1	1	1	0	5
Virginia:								
Lynchburg	0	0	0		0	0	0	1
Richmond	0	3	0		1	0	0	1
Roanoke	0	1	5		0	0	0	0
West Virginia:								
Charleston	0	0	1		0	0	0	0
Huntington	0		0		0	1	0	0
Wheeling	3	0	1		0	11	1	0
North Carolina:								
Raleigh	0	1	0		0	0	0	0
Wilmington	0	0	0		0	1	0	0
Winston-Salem	1	1	0		0	5	2	0
South Carolina:								
Charleston	0	0	0	2	0	0	0	3
Columbia	0	0	0		0	0	0	0
Greenville	0	0	0		0	0	0	0
Georgia:								
Atlanta	0	3	2		0	0	0	1
Brunswick	0	0	0		0	0	0	0
Savannah	0	0	0	3	0	2	0	0
Florida:								
Miami	0	0	0	1	0	0	0	1
Tampa	0	1	4		0	0	1	0

City reports for week ended August 13, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
EAST SOUTH CENTRAL								
Kentucky:								
Covington		0						
Lexington	0		0		0	0	0	0
Tennessee:								
Memphis	0	1	0		0	0	0	0
Nashville	0	1	0		1	0	0	2
Alabama:								
Birmingham	0	2	1		0	0	0	6
Mobile	0	0	0		0	0	0	1
Montgomery	0	0	0			0	0	
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith	0	0	0			0	0	
Little Rock	0	0	0		0	0	0	2
Louisiana.								
New Orleans	0	5	2	2	2	0	0	9
Shreveport	0	0	0		0	0	0	1
Oklahoma:								
Muskogee	0		0		0	0	0	0
Texas:								
Dallas	0	3	12		0	2	0	4
Fort Worth	0	2	0		0	0	0	2
Galveston	0	0	0		0	0	0	0
Houston	0	2	6		0	0	0	2
San Antonio	0	1	2		0	1	0	2
MOUNTAIN								
Montana:								
Billings	0	0	0		0	1	0	0
Great Falls	0	0	0		0	1	0	1
Helena	0	0	0		0	0	0	0
Missoula	0	0	0		0	0	0	0
Idaho								
Boise	0	0	0		0	0	0	0
Colorado:								
Denver	2	6	1		0	1	7	6
Pueblo	0	1	0		0	0	0	0
New Mexico:								
Albuquerque	0	0	0		0	0	0	0
Utah								
Salt Lake City	1	1	0		1	0	7	0
Nevada:								
Reno	0	0	0		0	0	0	0
PACIFIC								
Washington:								
Seattle	3	1	0			0	5	
Spokane	3	1	0			0	3	
Tacoma	0	2	0		0	1	0	0
Oregon:								
Portland	1	3	0		0	5	0	2
Salem	1	0	0			2	0	
California:								
Los Angeles	13	17	11	29	0	5	8	9
Sacramento	1	0	0		0	0	0	3
San Francisco	7	5	2	1	0	4	4	4

City reports for week ended August 13, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths all causes
NEW ENGLAND											
Maine:											
Portland	0	1	0	0	0	0	0	0	0	7	25
New Hampshire:											
Concord	0	2	0	0	0	0	0	0	0	0	8
Manchester	0	3	0	0	0	0	0	0	0	0	10
Nashua	0	0	0	0	0	0	0	0	0	0	-------
Vermont:											
Barre	0	0	0	0	0	0	0	0	0	0	3
Massachusetts:											
Boston	15	25	0	0	0	6	2	2	0	56	165
Fall River	1	0	0	0	0	0	1	0	0	1	12
Springfield	1	1	0	0	0	0	0	0	0	1	21
Worcester	2	4	0	0	0	3	0	1	0	6	31
Rhode Island											
Pawtucket	0	0	0	0	0	0	0	0	0	0	17
Providence	3	-------	0	-------	-------	-------	1	-------	-------	-------	-------
Connecticut:											
Bridgeport	1	4	0	0	0	0	1	0	0	7	17
Hartford	1	1	0	0	0	0	1	0	0	0	30
New Haven	0	1	0	0	0	0	1	0	0	9	27
MIDDLE ATLANTIC											
New York:											
Buffalo	5	11	0	0	0	6	1	0	0	0	100
New York	25	40	0	0	0	85	26	49	2	101	1,119
Rochester	2	4	0	0	0	0	1	0	0	8	62
Syracuse	1	4	0	0	0	1	0	0	0	38	38
New Jersey:											
Camden	1	0	0	0	0	1	1	0	0	0	31
Newark	3	2	0	0	0	4	1	6	0	22	84
Trenton	1	2	0	0	0	0	1	1	0	7	32
Pennsylvania:											
Philadelphia	14	23	0	0	0	17	6	16	3	27	392
Pittsburgh	7	9	0	0	0	11	1	0	0	17	132
Reading	0	1	0	0	0	1	0	0	0	7	22
Scranton	-------	3	-------	0	-------	-------	-------	0	-------	4	-------
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	4	4	1	0	0	5	2	2	1	6	101
Cleveland	9	16	0	0	0	16	3	2	0	40	148
Columbus	2	6	0	0	0	5	0	0	0	3	79
Toledo	2	2	0	0	0	6	2	2	0	23	66
Indiana											
Fort Wayne	1	-------	0	-------	-------	-------	0	-------	-------	-------	-------
Indianapolis	2	0	1	0	0	6	0	1	0	6	-------
South Bend	0	1	0	0	0	1	0	0	0	2	13
Terre Haute	0	0	0	0	0	1	1	0	0	0	11
Illinois											
Chicago	27	49	0	0	0	30	5	4	0	70	502
Springfield	0	-------	0	-------	-------	-------	0	-------	-------	-------	-------
Michigan:											
Detroit	20	22	0	0	0	11	4	1	1	121	218
Flint	8	1	0	0	0	1	0	0	1	1	20
Grand Rapids	2	2	0	0	0	0	0	0	0	33	23
Wisconsin:											
Kenosha	1	0	0	0	0	0	0	0	0	6	6
Madison	1	0	0	0	-------	-------	0	0	-------	11	-------
Milwaukee	5	2	0	0	0	7	0	1	0	36	81
Racine	1	0	0	0	0	0	0	0	0	0	7
Superior	2	0	0	0	0	0	0	1	0	2	11

City reports for week ended August 13, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL											
Minnesota:											
Duluth	3	0	0	0	0	1	0	0	0	0	17
Minneapolis	9	4	0	0	0	3	1	1	0	1	72
St. Paul	6	0	0	0	0	3	1	0	0	24	49
Iowa:											
Des Moines	2	3	0	0	-------	-------	0	0	-------	0	20
Sioux City	0	0	0	0	-------	-------	0	0	-------	1	-------
Waterloo	1	0	0	0	-------	-------	0	0	-------	0	-------
Missouri:											
Kansas City	2	4	0	0	0	2	1	0	0	8	77
St. Joseph	1	0	0	0	0	0	0	0	0	0	27
St. Louis	7	2	0	0	0	8	6	6	3	3	166
North Dakota:											
Fargo	1	0	0	0	0	0	0	0	0	1	4
Grand Forks	1	0	0	0	-------	-------	0	0	-------	0	-------
South Dakota:											
Aberdeen	0	0	0	0	-------	-------	0	0	-------	1	-------
Nebraska:											
Omaha	1	4	0	0	0	7	0	0	0	0	46
Kansas:											
Topeka	1	0	0	0	0	0	0	0	0	5	-------
Wichita	1	0	0	0	0	0	0	0	0	0	26
SOUTH ATLANTIC											
Delaware:											
Wilmington	0	0	0	0	0	1	0	0	0	1	33
Maryland:											
Baltimore	4	7	0	0	0	12	6	18	1	25	166
Cumberland	0	0	0	0	0	2	1	1	0	5	11
Frederick	0	0	0	0	0	0	0	0	0	0	5
District of Col.:											
Washington	4	6	0	0	0	10	2	5	0	3	137
Virginia:											
Lynchburg	0	0	0	0	0	1	1	2	0	28	12
Richmond	2	6	0	0	0	2	2	0	0	0	41
Roanoke	1	1	0	0	0	0	1	0	0	3	18
West Virginia:											
Charleston	0	3	0	0	0	0	2	4	1	1	17
Huntington	-------	1	-------	0	0	0	-------	2	0	0	-------
Wheeling	0	0	0	0	0	0	0	0	0	1	18
North Carolina:											
Raleigh	0	0	0	0	0	1	0	0	0	3	10
Wilmington	0	0	0	0	0	1	0	0	1	0	7
Winston-Salem	1	1	0	0	0	2	2	0	0	4	12
South Carolina:											
Charleston	0	0	0	0	0	2	1	3	0	0	23
Columbia	0	0	0	0	0	0	1	0	0	0	3
Greenville	-------	0	-------	0	0	0	-------	0	0	0	-------
Georgia:											
Atlanta	2	0	1	0	0	4	4	5	1	3	52
Brunswick	0	0	0	0	0	0	1	0	0	0	-------
Savannah	0	0	0	0	0	1	0	1	0	1	22
Florida:											
Miami	0	0	0	0	0	3	0	1	0	0	23
Tampa	0	1	0	0	0	0	1	0	0	0	24
EAST SOUTH CENTRAL											
Kentucky:											
Covington	0	-------	0	-------	-------	-------	0	-------	-------	-------	-------
Lexington	-------	0	-------	0	0	0	-------	2	0	5	17
Tennessee:											
Memphis	1	2	0	0	0	9	10	6	1	9	78
Nashville	0	1	1	0	0	1	5	0	1	7	46
Alabama:											
Birmingham	1	0	0	0	0	3	5	1	0	4	46
Mobile	0	0	0	0	0	0	1	0	0	0	19
Montgomery	0	0	0	0	-------	-------	1	1	-------	0	-------

City reports for week ended August 13, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	0	0	0			0	0		2	
Little Rock	0	0	0	0	0	0	1	2	0	0	2
Louisiana:											
New Orleans	3	2	1	1	0	10	5	4	3	1	141
Shreveport	0	0	0	0	0	1	2	3	0	4	24
Oklahoma:											
Muskogee	1	0		0	0	0		2	0	0	
Texas:											
Dallas	3	2	0	0	0	4	4	4	0	2	64
Fort Worth	1	4	0	0	0	2	2	0	0	0	31
Galveston	0	0	0	0	0	0	1	1	0	0	11
Houston	1	0	0	0	0	6	2	0	0	0	74
San Antonio	1	1	0	0	0	2	1	2	0	0	40
MOUNTAIN											
Montana:											
Billings	0	0	0	0	0	0	0	0	0	0	3
Great Falls	0	1	0	0	0	0	0	0	0	0	5
Helena	0	0	0	0	0	0	0	0	0	0	3
Missoula	0	0	0	0	0	1	0	0	0	0	8
Idaho:											
Boise	0	0	1	0	0	0	0	0	0	0	7
Colorado:											
Denver	2	4	0	0	0	5	1	0	0	20	66
Pueblo	1	0	0	0	0	0	0	0	0	6	6
New Mexico:											
Albuquerque	0	0	0	0	0	5	0	0	0	2	11
Utah:											
Salt Lake City	1	1	0	0	0	0	• 2	0	0	7	25
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	5
PACIFIC											
Washington:											
Seattle	3	2	0	0			1	0		0	
Spokane	1	0	1	2			0	1		0	
Tacoma	2	1	2	2	0	0	0	4	1	0	30
Oregon:											
Portland	2	1	3	0	0	1	1	0	0	16	49
Salem	0	0	0	0			0	0		7	
California:											
Los Angeles	10	12	2	5	0	19	2	2	0	79	276
Sacramento	1	1	1	0	0	2	1	3	0	5	23
San Francisco	5	2	0	0	0	7	2	0	0	10	150

City reports for week ended August 13, 1932—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases estimated expectancy	Cases	Deaths
NEW ENGLAND									
Maine:									
Portland	0	0	0	0	0	0	0	2	0
Massachusetts:									
Worcester	0	0	1	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York [1]	2	4	3	1	0	0	16	11	2
New Jersey:									
Newark	2	0	0	0	0	0	0	1	0
Trenton	0	0	0	0	0	0	0	1	0
Pennsylvania:									
Philadelphia	3	1	0	0	0	0	1	45	3
EAST NORTH CENTRAL									
Ohio:									
Cleveland	2	0	0	0	0	0	1	1	0
Columbus	0	0	0	0	0	0	0	1	1
Indiana:									
Indianapolis	3	0	0	0	0	0	0	0	0
Illinois.									
Chicago	2	1	0	0	0	0	2	2	1
Michigan:									
Detroit	1	0	1	0	0	0	2	0	0
Wisconsin:									
Milwaukee	0	0	1	1	0	0	0	1	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis	1	0	0	0	0	0	0	0	0
St. Paul	0	0	0	0	0	0	0	1	0
Iowa:									
Des Moines	0	0	0	0	0	0	0	1	0
SOUTH ATLANTIC									
Maryland:									
Baltimore [1]	0	0	1	1	0	0	1	1	0
District of Columbia:									
Washington	0	0	1	1	0	0	1	2	0
West Virginia.									
Charleston	0	0	0	0	0	1	0	0	0
Huntington	0	0	0	0	1	0	-------	0	0
North Carolina:									
Raleigh	0	0	0	0	2	0	0	0	0
South Carolina:									
Charleston	0	0	0	0	4	0	0	1	0
Georgia.									
Atlanta [1]	2	0	1	1	2	0	0	0	0
Brunswick	0	0	0	0	3	0	0	0	0
Savannah [1]	0	0	0	0	2	1	0	0	0
Florida.									
Miami	0	0	0	0	1	0	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis	0	0	0	0	0	0	0	1	0
Nashville	0	1	0	0	0	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans [1]	0	0	0	0	1	1	0	3	0
Shreveport	0	0	0	0	0	1	0	0	0
Texas.									
San Antonio	0	0	0	0	0	0	0	1	0
PACIFIC									
Washington:									
Seattle	0	0	0	0	0	0	1	1	0
California:									
Los Angeles	0	1	1	0	1	0	1	3	1

[1] Typhus fever, 9 cases: 2 cases at New York City, N. Y.; 1 case at Baltimore, Md.; 2 cases at Atlanta, Ga.; 3 cases at Savannah, Ga.; and 1 case at New Orleans, La.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended August 6, 1932.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases for the week ended August 6, 1932, as shown in the following table. Provinces not given in the table did not report, during the week, any case of any disease included in the table.

Province	Cerebrospinal fever	Influenza	Lethargic encephalitis	Poliomyelitis	Smallpox	Typhoid fever
Nova Scotia	2	8		1		
Quebec				18		7
Ontario		1			3	[1] 19
Manitoba						3
Saskatchewan						1
Alberta			1			1
British Columbia		3				1
Total	2	12	1	19	3	[1] 32

[1] Including 5 cases of paratyphoid fever.

Quebec Province—Communicable diseases—Week ended August 6, 1932.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended August 6, 1932, as follows:

Disease	Cases	Disease	Cases
Chicken pox	5	Puerperal septicemia	1
Diphtheria	11	Scarlet fever	29
Erysipelas	1	Tuberculosis	31
German measles	1	Typhoid fever	7
Measles	15	Whooping cough	30
Poliomyelitis	18		

CZECHOSLOVAKIA

Communicable diseases—June, 1932.—During the month of June, 1932, certain communicable diseases were reported in Czechoslovakia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	1		Puerperal fever	38	21
Cerebrospinal meningitis	11	8	Scarlet fever	1,373	25
Diphtheria	1,541	70	Trachoma	163	
Dysentery	10		Typhoid fever	290	27
Malaria	124		Typhus fever	1	
Paratyphoid fever	15	2			

ITALY

Communicable diseases—Four weeks ended January 10, 1932.—During the four weeks ended January 10, 1932, cases of certain communicable diseases were reported in Italy as follows:

Disease	Dec. 14-20		Dec. 21-27		Dec. 28-Jan. 3		Jan. 4-10	
	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected
Anthrax	13	11	25	24	21	17	42	37
Cerebrospinal meningitis	12	11	8	7	9	9	8	8
Chicken pox	222	91	368	106	197	73	376	132
Diphtheria and croup	456	238	681	334	464	249	612	315
Dysentery	9	7	4	3	2	2	8	7
Lethargic encephalitis			3	3	1	1		
Measles	1,169	159	1,588	216	1,089	165	1,679	215
Poliomyelitis	13	10	8	6	9	6	11	8
Rabies			1	1				
Scarlet fever	326	129	423	103	315	116	430	151
Smallpox							1	1
Typhoid fever	295	169	452	225	261	146	357	203

LATVIA

Communicable diseases—June, 1932.—During the month of June, 1932, cases of certain communicable diseases were reported in the Republic of Latvia, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	7	Poliomyelitis	3
Diphtheria	43	Puerperal fever	14
Erysipelas	22	Scarlet fever	32
Influenza	65	Trachoma	96
Leprosy	1	Typhoid fever	48
Measles	16	Typhus fever	5
Mumps	66	Whooping cough	191
Paratyphoid fever	21		

VIRGIN ISLANDS

Notifiable diseases—July, 1932.—During the month of July, 1932, cases of certain notifiable diseases were reported in the Virgin Islands, as follows:

Disease	Cases	Disease	Cases
Chancroid	1	Syphilis	7
Gonorrhea	4	Tetanus	1
Leprosy	1	Tuberculosis	4
Malaria	26	Uncinariasis	1
Pellagra	2		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—Current information regarding the world-wide prevalence of the quarantinable diseases and data covering the preceding six months have heretofore been published in tabular form at this place in the Public Health Reports. Owing to the necessity for drastic economies resulting from a reduction in printing funds, the full table will be published, at least for the time being, only in the last issue of each month. In the intervening weekly issues there will be printed in this space brief notes regarding new foci of quarantinable diseases and other important data considered of especial interest to quarantine officers.)

Cholera

Baluchistan.—During the week ended August 6, 1932, 18 cases of cholera with 6 deaths were reported in Baluchistan.

China.—Cholera has been reported in Chinese cities as follows: Week ended July 30, 1932—Kwantung, District of Port Arthur, 2 cases, 2 deaths; Hankow, 6 cases and 3 deaths. Week ended August 6, 1932: Amoy, 110 cases, 48 deaths; Macao, 18 cases, 18 deaths; Nanking, 112 cases, 24 deaths; Shanghai, 454 cases, 39 deaths. Week ended August 13, 1932: Canton, 8 cases, 4 deaths; Hong Kong, 11 cases, 9 deaths. On August 23, 1932, 22 cases of cholera with 8 deaths were reported at Tsingtao, China.

Philippine Islands.—One fatal case of cholera was reported August 15, 1932, at Malolos, Bulacan Province, Philippine Islands.

Plague

Hawaii Territory.—Three plague-infected rats have been reported at Makawao, Island of Maui, Hawaii Territory. One rat was captured August 9, 1932, and two rats August 11.

Senegal.—Twelve fatal cases of plague were reported at Thies, Senegal, during July, 1932.

Yellow Fever

Bolivia.—The disease previously reported[1] in southern Bolivia has been proved to be yellow fever. The principal focus is the city of Santa Cruz and surrounding territory. About 30 deaths have occurred. Under date of July 26 it was said that two or three sporadic cases a month were occurring.

[1] Public Health Reports, Aug. 26, 1932, p. 1811.

X

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PUBLIC HEALTH REPORTS

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BY THE UNITED STATES
PUBLIC HEALTH SERVICE

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SEPTEMBER 9 - - 1932

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Studies on Immunity Induced by Mouse Sarcoma 180
List of Establishments Licensed for Biological Products

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DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

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They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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CONTENTS

PUBLIC HEALTH REPORTS

VOL. 47 SEPTEMBER 9, 1932 NO. 37

STUDIES ON IMMUNITY INDUCED BY MOUSE SARCOMA 180

By H. B. ANDERVONT, *Biologist, United States Public Health Service*

In view of the comprehensive publications of Woglom (1), (2) on immunity to transplantable tumors, to which the reader is referred, a review of the literature on the subject is not presented in this paper. It is known that mice may acquire an immunity to transplantable tumors, either by the growth of tumor cells or by the injection of normal living tissues. However, mouse sarcoma 180 of the Crocker Institute seems to be an exception to this rule so far as immunity induced by the injection of normal living cells is concerned. Rohdenburg and Bullock (3) state, in this connection, that it is "refractory to the immunizing power of living cells" unless its growth energy is attenuated by heat or exposure to radium. Wood and Prigosen (4) were unable to induce resistance in mice against mouse sarcoma 180 by the injection of pieces of irradiated tumor. In this laboratory, attempts have been made to immunize mice against the tumor by the injection of mouse-embryo skin, but such efforts failed to reveal any significant resistance to transplants from an actively growing tumor.

Mouse sarcoma 180 is a highly malignant growth. During the past four years it has been propagated in this laboratory [1] and, regardless of the strain of mice employed, has grown progressively in from 95 to 100 per cent of inoculated animals with less than 1 per cent of spontaneous recessions. In view of this remarkable power of proliferation and the difficulty encountered in trying to immunize mice against the tumor by the use of embryo skin, it seemed of interest to ascertain whether mice would become refractory to the growth through the process of concomitant immunization. As a rule, it is easy to detect this type of resistance in mice by inoculating the animal with the tumor to be tested, and, after 10 to 14 days, reinoculating the same strain of tumor in another region of the body. However, this procedure proved unsatisfactory in the case of sarcoma 180, since the rapid growth of the primary inoculation usually killed the mice within four to six weeks and before the result of the second inocula-

[1] We are indebted to Dr. F. C. Wood, of the Crocker Institute for Cancer Research, for this strain of tumor.

tion could be satisfactorily established. While it is feasible to test for concomitant immunity after excision of the primary tumor, search was made for a simpler procedure.

As a preliminary, a study was made of the range of sites in which the tumor cells could multiply in the body of the mouse. These gave some interesting results. A tumor developed in the majority of animals when the cells were injected intracutaneously or into the pads of the rear feet, or when rubbed into a shaved and scarified area on the skin, but these results were not constant. However, these early attempts showed that the cells of sarcoma 180 were able to grow in regions where one might expect the cells of a less malignant tumor to perish. Among the sites of implantation which were studied, that of the tail yielded the most interesting results. The first part of this paper, therefore, deals with the results of experiments in which efforts were made to grow the tumor in the tails of mice.

TECHNIQUE EMPLOYED FOR CAUDAL INOCULATION OF MICE

Little difficulty is encountered in implanting sarcoma 180 in the tails of mice. The animals are placed in a suitable holder and either the trocar or syringe method of inoculation is employed. An 18-gage needle equipped with a snugly fitting plunger serves as a trocar if this method is deemed advisable, but the syringe method was found to be far more effective. Pieces of sarcoma 180, free from any necrotic material, are taken from an actively growing tumor, passed through a mincing machine and drawn into a sterile Bashford syringe. The syringe needle is inserted between the thick epidermal covering and the dorsal vein about midway up the tail. With a sharp needle and reasonable care, very little bleeding occurs. The needle point is inserted from 15 to 20 millimeters under the skin and then withdrawn for about three-fourths the distance before the tumor material is expelled from the syringe. With this technique, 0.5 cc of minced tumor is sufficient for about 30 caudal inoculations. In case a Bashford syringe is not available, a 1-cc tuberculin syringe and an 18-gage needle will prove satisfactory, provided the opening in the end of the syringe barrel is large enough to permit passage of the tumor mash. A thorough washing of the barrel and plunger in sterile salt solution before use in order to prevent the plunger from sticking is advisable.

RESULTS OF CAUDAL INOCULATION OF MICE WITH SARCOMA 180

A small number of mice (97) were inoculated caudally with the trocar technique. Of these animals, 55 responded with tumors, of which 15 regressed. The trocar technique was discontinued when the syringe method was found to be more satisfactory. In 10 experi-

ments a total of 400 mice were inoculated in the tail with the syringe technique. Of these animals 386 developed tumors, of which 68 receded spontaneously. However, in most of the experiments the tails were amputated after the tumor had become established. The records show that in 30 of these experiments 1,176 mice were inoculated caudally and 1,160 responded with tumor. Thus, it is seen that in 1,576 caudal inoculations of the sarcoma by the syringe method, 1,546, or 98 per cent, were successful. These results compare favorably with those attending groin inoculation of the same tumor. In contradistinction to the results of groin implantation, the response of 386 mice in which the tail tumors either regressed or grew until the death of the animal indicates that about 18 per cent of caudal tumors recede. This implies that the tail is not so favorable a site as the groin for the progressive growth of sarcoma 180.

FACTORS INFLUENCING THE RATE OF GROWTH OF TAIL TUMORS

As might be expected, sarcoma 180 exhibits variation in its rate of growth while in the tails of mice. As a rule, definite evidence of tumor is present one week after caudal inoculation. Two weeks after implantation the average size of 300 tail tumors was 15 mm in length and 6 mm in width. The tumor in most cases grows much larger and ulcerates, thus forming a portal of entry for infecting microorganisms which ultimately kill the mouse. Death occurs about six to eight weeks after inoculation unless the tail be amputated.

The rate of growth of tail tumors depends, apparently, upon two factors: The first of these is the growth energy of the tumor employed for inoculation; the second is the natural resistance of the inoculated animal. In this connection it should be mentioned that the following kinds of animals were employed in these experiments: A pure breed of mice was available from a colony propagated in this laboratory for the purpose of obtaining spontaneous tumors. These mice are designated as strain A mice throughout this communication. Most of the animals, however, were not of pure breed. These were purchased from three different dealers and are designated as stock mice. In order to exclude any variation in susceptibility on the part of mice from different sources, animals from the same shipment were always used as controls. The stock animals showed no pronounced variation in susceptibility to caudal inoculation of the tumor. The results presented in the preceding paragraphs include only those obtained in stock animals and coincide with those attending groin inoculation of other stock mice.

Strain A mice, however, were more susceptible to caudal inoculation than the stock animals. This difference is brought out in the following experiment which also shows the variation in growth energy of tumors employed for inoculation.

Experiment 1

The material consisted of 50 female mice of strain A and 100 female stock mice of like weight (20 gm to 25 gm). All the strain A and 50 of the stock mice were inoculated caudally from one sarcoma 180. On the following day the remainder (50) of the stock mice were inoculated in the same manner from another sarcoma 180. Two weeks later there was a remarkable difference in the size of the tail tumors in the strain A and stock mice inoculated at the same time. This difference is best shown in the weights of the tails of the animals which were amputated at this time. These weights were as follows:

Group 1: 50 strain A mice, 32.5 gm—an average of 0.65 gm per tail.
Group 2: 50 stock mice, 21.5 gm—an average of 0.43 gm per tail.

The comparison of the weights of amputated tails plus tumor was found to be a far better method for comparing the size of tumors than the use of actual measurements. This is particularly the case when the tumors are exceedingly small, as in the stock mice of this experiment.

Referring now to the response in this experiment of stock mice of the same batch to inoculation of two different tumors of the same strain, we again find a striking difference in the rate of growth. Two weeks following caudal inoculation of these mice the weights of tails plus tumors were as follows:

Group 2 (inoculated from tumor A): 50 mice (as stated above), 21.5 gm—an average of 0.43 gm per tail.

Group 3 (inoculated from tumor B): 50 mice (inoculated one day later), 30.5 gm—an average of 0.60 gm per tail.

Such results show that the rate of tumor growth in the tails of mice depends upon both the resistance of the animals and the growth energy of the tumor employed as inoculum. They also indicate that the response of mice to caudal inoculation may be a satisfactory test both for the resistance of the animal and the proliferative power of the tumor. It is also significant that the strain A mice which have a high spontaneous tumor rate were found to be more susceptible to caudal inoculation than the stock mice. The ability of sarcoma 180 to induce concomitant immunity in strain A mice will be discussed later.

It is clear that the factors of both individual resistance and of the proliferative energy of tumor have a decided influence upon the growth of the sarcoma in the mouse's tail. In view of this, attempts were made to discover other factors which might either retard or aid in the development of tail tumors. Most of these efforts were unsuccessful, but the influence of temperature had such a pronounced effect upon tumor growth that the observation seems worthy of presentation.

In eight experiments mice were inoculated in the tail with sarcoma 180 and some of their number kept at temperatures of from 12° to 18°

C., while others kept at room temperature (23° to 29° C.) served as controls. All these experiments gave identical results, i. e., the tumors in the mice kept at room temperature grew progressively while those in animals kept at 12° C to 18° C. grew very slowly and eventually regressed in about 35 per cent of those in which tails were not amputated. A protocol of one experiment will suffice to show the difference in the rate of growth under different temperature conditions:

Experiment 2, August 12, 1931

One hundred female stock mice were inoculated caudally with sarcoma 180; 50 were kept at temperatures varying between 14° and 18° C.; while 50 were kept as controls at a room temperature of from 24° to 29° C. Two weeks after inoculation all the mice showed definite evidence of tail tumors. Their tails were then amputated and weighed with the following results:

Room-temperature mice: 48 living. Total weight of tail plus tumor was 33 gm—an average of 0.68 gm per tail.

Cold-room mice: 46 living. Total weight of tail plus tumor was 19.5 gm—an average of 0.42 gm per tail.

This low range of temperature, however, had no effect upon the growth of sarcoma 180 when inoculated in the inguinal region. The influence of temperature may offer an explanation for the greater number (18 per cent) of regressions occurring among tail tumors than the few (less than 1 per cent) observed in groin tumors when the animals were kept at room temperature.

IMMUNOLOGICAL OBSERVATIONS

Russell (5) believed that he had demonstrated that some propagable tumors elicit resistance in mice, while others lack this property. If a tumor having a high growth energy, like sarcoma 180, should belong to the group inducing resistance, in view of this high growth energy it is reasonable to assume that such resistance should be pronounced. From a search of the literature it would not appear that sarcoma 180 has been studied from the standpoint of concomitant resistance. It is evident that caudal implantation of sarcoma 180 furnishes an opportunity of determining whether or not this tumor elicits resistance, and the degree of immunity conferred. Besides this, in the event of a high order of resistance, the method should furnish immune mice in considerable numbers, since extirpation of the tumor by tail amputation is easy, once resistance has been established. This would furnish the requisite material for such studies as the means by which such acquired resistance might be modified and also the effect of acquired immunity to a transplantable tumor of high growth energy upon susceptibility to spontaneous tumor.

Consequently the experiments reported in the remainder of this paper deal principally with the concomitant immunity induced by sarcoma 180 and associated problems.

Experiment shows that successful caudal inoculation of mice with sarcoma 180 induces immunity to this tumor. The records of 17 experiments wherein 461 female mice were tested for immunity two weeks after tail inoculation show that 283 or about 60 per cent were completely resistant to reinoculation. In order to avoid repetition, the manner in which mice were tested for immunity will now be presented.

The animals received a primary inoculation of tumor in the tail by means of a Bashford (6) syringe, according to the technique previously described. In order to test for the presence of immunity, a piece of actively growing tumor was implanted in the subcutaneous tissue of one groin by means of a 13-gage trocar. Any mouse failing to respond to the first reinoculation within two to three weeks received another implant in the opposite groin. The need for this second test for immunity should be emphasized, since experience has shown that, although negative to the first inoculation, from 5 to 10 per cent of mice were susceptible to the second groin implantation. Thus, unless noted otherwise, only those animals surviving two test implantations of tumor which gave practically 100 per cent of takes in control mice were considered immune.

As might be expected, a large number of animals bearing tail tumors developed only a partial resistance to reinoculation, for the rate of tumor growth was always much slower in such mice than in the controls. However, only those mice showing complete resistance to the tumor by remaining tumor free during one month's observation after the second groin implantation are designated as "immune" in the following experiments. This procedure obviates the use of charts showing the rate of growth in control and immunized animals.

When removal of the tail tumor was desired, the animal was etherized, the tail amputated about 10 mm from the root, and the stump painted with tincture of iodine. This rather crude technique gave surprisingly satisfactory results; less than 1 per cent of the mice succumbed. The tail stump healed completely within two weeks.

THE RELATION OF SEX TO INDUCED IMMUNITY

During the first few experiments on induced resistance to the tumor, mice of both sexes were used indiscriminately as experimental animals. However, since previous investigations (7) by the writer had given some indication that male mice were less resistant to the infection of herpetic virus than females, observations were made to determine whether such sex difference existed as well in acquiring resistance to mouse sarcoma 180.

The first three experiments suggested that sarcoma 180 induces resistance more readily in female than in male mice. Equal numbers of stock mice of the same weight (20 to 25 gm) but of different sex were inoculated caudally. In each experiment the mice were divided into three groups, each group containing an equal number of males and females. The first group was tested for immunity on the tenth day, the second on the fourteenth day, and the third on the twenty-first day after caudal inoculation. The tails of these animals were not amputated; consequently only one test for immunity was performed. The following is a summary of the three experiments:

Tested for immunity 10 days after caudal inoculation: Males, 24 mice, 6 immune, 24 per cent; females, 18 mice, 12 immune, 66 per cent.

Tested for immunity 14 days after caudal inoculation: Males, 51 mice, 8 immune, 16 per cent; females, 50 mice, 23 immune, 46 per cent.

Tested for immunity 21 days after caudal inoculation: Males, 30 mice, 6 immune, 20 per cent; females, 33 mice, 13 immune, 40 per cent.

Although these results, perhaps, are not to be accepted as conclusive evidence of more readily induced resistance on the part of females, still it is probable that there is a significant difference in this respect between the sexes. Consequently, care was taken throughout the experiments recorded in this paper to use animals of the same sex as controls. In addition it will be noted that female mice were used almost exclusively.

THE TIME OF APPEARANCE OF INDUCED IMMUNITY

Woglom (2), in his review of immunity to transplantable tumors, states that acquired immunity is at its maximum in about 10 days. This period is only approximated as regards the immunity induced by growth of sarcoma 180 in the mouse's tail.

Stock female mice were tested for immunity at varying intervals of time following caudal inoculation. The results of three groups of such inoculations are summarized below.

Number of days after caudal inoculation	Number of mice tested	Immune	
		Number	Per cent
3	20	4	20
7	37	15	40
10	43	18	42
14	50	30	60
21	52	32	62
28	35	21	61

These results were obtained during the early part of the studies before amputation of the tail became a routine procedure and consisted of but one test for immunity. However, the experiments indi-

cate that resistance to sarcoma 180 reaches its peak in about two weeks.

FLUCTUATIONS IN CONCOMITANT IMMUNITY INDUCED BY SARCOMA 180

Bullock and Rohdenburg (8) (9) have called attention to fluctuations in immunity induced both by transplantable tumors and by embryo skin. In carrying on this phase of the work, due note was taken of the fact that the stock mice used in these investigations came from three different sources, thereby introducing a factor demanding careful control. Moreover, the tumor itself may vary in its ability to produce immunity when used at different times. The use of a tumor of high virulence in the first test for immunity may also play an important rôle in the number of immune animals obtained. This factor should be considered when using a tumor such as sarcoma 180, as the virulence of the growth may vary greatly, although it may still produce tumors in 100 per cent of control animals. It was, therefore, essential to take certain precautions in carrying out experiments to determine whether or not fluctuations occurred in the resistance induced to sarcoma 180 when stock mice were employed as test animals. In the experiment to be presented, the mice were selected with the following precautions: They were of the same batch of stock animals; they were inoculated about the same time; the tail tumors were of the same size when the tails were amputated; and approximately the same rate of growth occurred in groin tumors of all the controls.

Experiment 3, August 12, 1931

Fifty female stock mice were inoculated caudally with sarcoma 180; two weeks later their tails were amputated and the mice tested for immunity; 85 per cent were immune to both test inoculations.

On August 21, 1931, 40 female stock mice were inoculated caudally; they were tested for immunity two weeks later, and at the same time their tails were amputated; only 52 per cent of these animals were immune.

Other experiments not exhibiting the same response in control mice but the same rate of growth of tail tumors also yielded different numbers of immune mice; but in such experiments all the control mice developed tumors which grew progressively and killed the animals. The difference in the number of immune animals in such experiments was apparently due to some difference in the properties of the tumors used for caudal inoculation.

Evidence was easily obtained that the rate of growth of tumors transplanted into the tails of stock mice was associated with their ability to elicit resistance. In four experiments comprising 96 mice, the tumors used for caudal inoculation of female stock mice grew very slowly. Of these 96 mice only 26 or about 27 per cent became

immune. Further evidence that the rate of growth of tail tumors corresponded with their ability to induce immunity was found when the mice kept at lower temperature and bearing slowly growing tumors as a result were tested for immunity. Following the confinement of the mice of experiment 2 in the cold, both they and the room-temperature controls were tested for immunity. This test took place when the tails were amputated—that is, two weeks after inoculation. All the animals after groin inoculation were kept at room temperature. The results were as follows:

Of 42 cold room mice surviving two tests for immunity, 23, or 55 per cent, were immune.

Of 48 control mice surviving two tests for immunity, 41, or 85 per cent, were immune.

This was an exceptionally high percentage of immune mice following the growth of tail tumors in the cold. It should be mentioned, however, that in experiment 2 the cold room mice developed larger caudal growths than in any other similar experiment. Following is a summary of the results of immunity tests in the other seven cold-room experiments:

Of 105 cold-room mice surviving two tests for immunity, 20, or 20 per cent, were immune.

Of 115 control mice surviving two tests for immunity, 66, or 58 per cent, were immune.

In view of the fact that slow-growing tail tumors fail to induce immunity in a high percentage of mice, one might expect conversely that a rapidly growing tail tumor would produce a large number of immune animals. Attention was accordingly paid to this point. In dealing with this phase of the work, stock mice could not be used because under normal conditions no pronounced variation in susceptibility to caudal inoculation of the tumor was observed in these animals. However, it was possible to utilize the extreme susceptibility to caudal inoculation of strain A mice in this connection. Referring once more to experiment 1 we find that a tumor which grew very slowly in the tails of stock mice, nevertheless grew rapidly when implanted in the tails of mice belonging to strain A.

In the same experiment there is also a group of stock mice inoculated from a tumor which, in the tail, produced tumors of average size. All these animals were tested for immunity two weeks after caudal inoculation. The results are as follows:

Group 1: Of 47 strain A mice surviving two tests for immunity, 10, or 20 per cent, were immune.

Group 2: Of 46 control stock mice surviving two tests for immunity, 13 or 28 per cent, were immune.

Group 3: Of 49 stock mice inoculated one day later than the mice of Groups 1 and 2 and surviving two tests for immunity, 34, or 70 per cent, were immune.

From the above it is seen that there is but little difference in the percentage of immune mice in Groups 1 and 2, although the tumor grew excellently in the tails of the more susceptible strain A animals and poorly in the tails of the stock mice. On the other hand, there is a striking difference in the percentage of immune animals of Group 3, as compared with Group 1, although the rate of growth of the tumor in both cases was practically the same, as the difference in the average weights of the amputated tails plus tumor in the two groups was only 0.05 gm.

In general, female mice of strain A were not available in any quantity for immunological investigations of this kind, since they are kept in this laboratory as a source of spontaneous tumors. For this reason, in carrying out most of these experiments, male mice of strain A were used. A protocol of one experiment which shows the difficulty encountered in immunizing strain A mice is now presented.

Experiment 4

Seventy-five male mice of strain A weighing 18 to 25 grams each were inoculated near the tip of the tail with sarcoma 180. All developed tumors. Ten days after the first caudal inoculation, a second tail inoculation was made in each mouse. Two weeks after the second inoculation, 73 mice were living, of which 62 had two tail tumors and the remainder, 11, had but one. The tails were then amputated and the mice tested for immunity by groin implantation. Of 64 survivors, only 7, or about 10 per cent, were immune.

In this experiment it is noted that each mouse received a second implantation of sarcoma 180, 10 days after the first, because it was found that reinoculation of the tail increases the yield of immune animals. As a rule, in the case of stock mice undergoing a double tail implantation, about 50 per cent of the male and about 75 per cent of the female mice become immune. The experiment just described is typical of others resulting in the same way, i. e., that in the case of strain A mice although the tumor grows excellently in the tail, it fails to induce concomitant immunity to the same extent as in stock mice.

Three of the factors influencing the fluctuation of immunity induced in mice by caudal inoculation of sarcoma 180 may be summarized as follows: First, an inherent property of the tumor itself. This factor is evident when two tumors produce tail growths of equal size in the same strain of mice, yet possess different powers of eliciting resistance in the mice, as shown by significant fluctuations in the percentage of mice passing the immunity test. The second factor is closely associated with variations in the growth energy of the tumor; e. g., a tumor showing subnormal growth in the tail does not induce concomitant immunity to the same degree as one which pursues a normal

development (15 mm by 6 mm in 14 days). On the other hand there is no evidence to show that a tumor of higher growth power elicits immunity in a higher percentage of mice. In these experiments the experience has been that a tumor that grows steadily but not so rapidly as to overwhelm the defense of the animal produces most immune mice. The third factor lies in the animal itself. Mice such as those of strain A which are highly susceptible to the tumor are apparently unable to build up resistance to the same extent as those animals which already have some degree of natural resistance.

THE EFFECTS UPON AN ESTABLISHED TUMOR OF REINOCULATION WITH SARCOMA 180

Mice possessing sufficient natural resistance to bring about the regression of caudal tumors were usually found to be resistant to reinoculation. However, there were occasional exceptions to this generalization, for some animals in which a tail tumor had disappeared spontaneously developed tumors when reinoculated in the groin. Instances were also observed in which receding caudal growths resumed activity and grew rapidly as the result of a successful implantation in some other region of the body. Nor is the presence of a rapidly growing subcutaneous tumor in a mouse bearing a regressing tail tumor a rare occurrence. The influence of a successful reinoculation of the tumor upon tumor cells already present within the body was noticed very early in these studies. The following experiment is of interest in this connection:

Experiment 5

Ten stock mice were each inoculated in the pad of a rear foot, by using finely minced sarcoma 180 and a 1-cc syringe equipped with a 22-gage needle. Now, it is very easy to detect a small tumor in this region. Within 10 days six of the mice had pad tumors averaging 4 mm in diameter. These animals were subsequently tested for immunity and three were found to be immune. Of the four remaining mice, two proved to be of interest in this group. Each of these four had received a groin inoculation 30 days after pad inoculation; none had shown any evidence of pad tumor up to this time. Two developed groin tumors and died six weeks later. One of the remaining two mice failed to respond to groin implantation, but 43 days following pad inoculation (13 days after groin inoculation) a tumor appeared in the pad. The tumor grew for 12 days, when it reached its maximum size of 5 mm in diameter. It then began to recede and disappeared 14 days later. In the last mouse a groin and pad tumor appeared simultaneously 14 days following groin inoculation (44 days after pad inoculation). The pad tumor attained its maximum size of 3 mm in diameter within 13 days, then began to recede and dis-

appeared 10 days later. The subcutaneous tumor, however, grew progressively and killed the animal two months after inoculation.

The assumption here seems reasonable that the sudden activity of the pad tumors, after a prolonged period of quiescence, was due to the introduction of new tumor cells at another site. Of course, the delayed appearance of the pad tumors might be regarded as fortuitous; yet, from the experience at this laboratory with pad tumors, such tumors were detected, as a rule, within seven to nine days after implantation and never so late as in the case of the animals just mentioned. Conversely, no instance has been observed in the course of these studies of arrest in the development of an actively growing primary tumor because of a successful secondary implantation.

THE RELATION BETWEEN TUMOR GROWTH AND ACQUIRED RESISTANCE

So far as sarcoma 180 is concerned, it would appear as if growth of tumor cells is essential for the production of immunity. Mice failing to develop tumors in their tails were always susceptible to reinoculation in the groin. The results of a few experiments conducted in this laboratory in which mice were given a subcutaneous injection of suspensions of sarcoma 180 cells produced further evidence along these lines. In these experiments varying dilutions of finely minced tumor were made in physiological saline. While tumors occurred in most of the animals receiving the lower dilutions (1:5 to 1:20), there were a few in which the inoculation was negative. These latter mice were always reinoculated with transplants of the tumor; none evinced any immunity. Since tumors were produced in most of the mice receiving the same dilution of tumor-cell suspension, one may assume that these mice also received living tumor cells. However, these experiments will not be gone into in detail, since there was no way of showing that by some element of chance the living and dead cells of the suspensions were not unequally divided among the various animals.

If we refer back to experiment 5 we find an animal immune to groin inoculation although it showed no sign of growth following an earlier pad inoculation. Yet this mouse finally developed a tumor at the site of the primary inoculation. The results of experiment 1 show that a slow-growing caudal tumor, while inferior in this respect to a tumor of normal growth energy, nevertheless elicits some degree of resistance. The idea consequently suggested itself that but a short period of growth of tumor cells might be required for the production of immunity. If this were so, one might expect a caudal growth of only one week's duration to elicit the same degree of immunity as one growing within the tissues of mice for a longer period of time. In order to examine this possibility the following experiments were performed:

Experiment 6

One hundred and twenty female stock mice were inoculated caudally with sarcoma 180. They were divided into 3 groups of 40 each and treated as follows:

Group 1: Tails amputated three days after inoculation.
Group 2: Tails amputated seven days after inoculation.
Group 3: Tails amputated fourteen days after inoculation.

All the mice of Group 2 showed evidence of beginning tumors and all of Group 3 had definite tumors at the time of amputation. Fourteen days after tail inoculation the mice were tested for immunity in the usual manner. The results were as follows:

Group 1: Of 38 mice surviving the immunity tests, 3, or 9 per cent, were immune.
Group 2: Of 38 mice surviving the immunity tests, 9, or 24 per cent, were immune.
Group 3: Of 38 mice surviving the immunity tests, 20, or 53 per cent, were immune.

Experiment 7

Seventy-five female stock mice were inoculated in the tail with sarcoma 180 and all developed tumors. Two weeks following inoculation, all the tails were amputated and, at the same time, 37 of the mice were inoculated in the groin. The other 38 were kept for two more weeks and then tested for immunity. The results of these tests were as follows:

Group 1: Of 35 mice inoculated in the groin two weeks after caudal inoculation, 28, or 80 per cent, were immune.
Group 2: Of 36 mice inoculated in the groin four weeks after caudal inoculation, 25, or 70 per cent, were immune.

This finding coincides with the results previously referred to in which the tail tumors grew for 30 days before the mice were tested for immunity. It therefore appears that resistance to the tumor does not reach its maximum until the tumor cells have grown in the mouse tissues for about two weeks. Moreover, once this period has elapsed, further growth of the tumor in the tail does not significantly increase the percentage of animals resistant to reinoculation. However, the fact that 9 per cent of the animals in Group 1 of experiment 6 were found to be immune after only three days with the tumor cells in their tails and the instance of the mouse cited in experiment 5 suggest that animals already possessing a high degree of natural resistance may become immune after contact of their tissues for brief periods only with tumor cells.

AUTOTRANSPLANTATION IN MICE PREVIOUSLY IMMUNIZED TO SARCOMA 180

The literature on immunity to propagable tumors contains few references to attempts made to ascertain whether an animal exhibits the same resistance to the tumor responsible for its immunity as it does to the same tumor strain taken from another animal. Woglom (10) has studied this problem in relation to the Jensen rat sarcoma and found that autografts of a tumor were unable to grow in the rat in which it had induced immunity. The accessibility of sarcoma 180, when growing in the tail, made this a relatively easy problem to study. The tails of mice bearing a 14-day growth of sarcoma 180 were amputated and the tumors removed under aseptic precautions. One piece of the tumor was reinoculated into a groin of the mouse from which it came and another piece into a control animal. The control mice all developed tumors, thus showing that a tumor taken from an immune animal has not lost its power of proliferation. The mice into which the autotransplant had been made were now inoculated in the opposite groin with a transplant of sarcoma 180 taken from another animal. Fifty-three mice were tested in this manner with the following results:

Twenty-four mice were immune to both transplants.
Seventeen mice were not immune to either transplant.
Twelve mice were immune to the heterotransplant but not immune to the autotransplant.

Until more conclusive evidence is obtained, it seems probable that the mice were equally resistant to both transplants. The fact that 12 mice grew tumors following autotransplantation of their own tumors but were resistant to the transplant from another mouse may be accounted for by a difference in the respective growth energies of the grafts. Apparently, an animal immune to sarcoma 180 is incapable of furnishing a stroma upon which even the cells of the tumor causing the immunity can multiply.

ATTEMPTS TO MODIFY THE PRODUCTION OF IMMUNITY DUE TO CAUDAL IMPLANTATION OF SARCOMA 180

In conformity with the projected lines of experimentation already mentioned as desirable, provided it were found that mouse sarcoma 180 elicited immunity in mice, attempts were made to influence by change in the experimental animals the production of the immunity brought about by the growth of this tumor in the host tissues. That variations, both in the tumor and in the different strains of mice, have an influence on the production of immunity has already been recorded. Efforts were made through modification of the host both to inhibit and to enhance the production of immunity. However,

positive results were obtained only in connection with the attempts to inhibit the production of immunity.

Investigators of the problems of tumor immunity have often suggested that damage to the reticulo-endothelial system plays a rôle in lowering the resistance of animals to transplantable growths. The experiment to be described was conducted for the purpose of investigating the possibility of india ink's inhibiting the appearance of acquired immunity.

Experiment 8

In this experiment 40 female stock mice received intravenous injections of india ink suspensions following caudal inoculation of sarcoma 180. A 10 per cent suspension of india ink was made in distilled water and filtered in order to remove any gross particles. After boiling to insure sterility, the suspension was slowly injected into a caudal vein of mice as follows:

On the first, second, and third day following caudal inoculation, each animal received 0.2 cc and on the fourth, sixth, seventh, and ninth day each received 0.3 cc. On the tenth day following tail inoculation the mice all had caudal growths. No difference was noted in the size of tumors either in the injected or the control mice. At this time all were given an implantation of tumor in the groin. The results were clear cut. Of 30 surviving mice receiving the india ink suspensions, only 1 was immune, while of 34 controls, 20 were resistant.

In order to provide a check upon the outcome of experiment 8, it was deemed advisable to use other substances which affect the reticulo-endothelial cells. Trypan blue, pontamine sky blue, and Chicago blue were employed, since these dyestuffs are known to stain these cells.

Experiment 9

One hundred and thirty female stock mice were inoculated caudally with sarcoma 180. Seven days later all these animals had definite tail tumors. They were divided into 4 groups, viz, 3 groups of 30 mice each for receiving injections and the 1 group of 40 to serve as controls. The dye suspensions were prepared by making a 0.5 per cent solution in sterile distilled water. Seven days after caudal inoculation, each animal was injected subcutaneously, on the back, with 0.5 cc of a dye solution. Group 1 received the trypan blue, Group 2 the Chicago blue, and Group 3 the pontamine sky blue. The injections were repeated on the ninth day succeeding tail inoculation. Two days later, Groups 1 and 3 received a third injection. In the case of Group 2, the third injection was omitted, because the mice were intensely stained and did not appear to be as well as those of the other two groups. All four groups were inoculated in the groin

two weeks after caudal inoculation. The tails of these animals were not amputated, but no difference in the size of their tumors was observed. The outcome of the single test for immunity is presented below.

Group 1: Of 24 mice vitally stained with trypan blue, 3 were immune.
Group 2: Of 22 mice vitally stained with Chicago blue, none was immune.
Group 3: Of 26 mice vitally stained with pontamine sky blue, none was immune.
Group 4: Of 31 control mice, 19 were immune.

These findings show that vital staining with these dyestuffs inhibits the production of concomitant immunity in mice bearing tail tumors. Chicago blue and pontamine sky blue in the amounts used proved to be deleterious to the health of the mice, so trypan blue alone was employed in all subsequent experiments. The effect of vital staining with trypan blue upon the ability of mice to acquire resistance to the tumor has been observed during three other experiments in which the technique of administering the dye was identical with that just described. The only difference in the method of carrying out these investigations consisted in amputation of the tails of all mice two weeks after caudal inoculation in order to subject the mice to two tests for immunity. A summary of the findings in these three experiments is given below.

Of 81 mice vitally stained with trypan blue, 16, or 20 per cent, were immune.
Of 79 control mice, 49, or 62 per cent, were immune.

Since it was evident that vital staining with trypan blue reduces the percentage of mice developing immunity consequent upon caudal inoculation, the next step was to determine whether the dye could "break" acquired immunity. In dealing with this problem, mice were selected that had withstood two tests for immunity and for controls, immune mice from the same batch as those receiving the injections. Each immune mouse received three subcutaneous injections on alternate days of 0.5 cc of a 0.5 per cent solution in distilled water of trypan blue. Both the injected and the control mice were inoculated in the groin the day following the last injection. The results of six such experiments are summarized as follows:

Of 81 vitally stained mice, 48, or 68 per cent, developed tumors.
Of 75 control mice, 7, or 9 per cent, developed tumors.

Some of the vitally stained mice developed small tumors which receded, but only animals with progressively growing tumors are included in the figures presented above. The results show that vital staining with trypan blue has a surprising effect upon established immunity.

Ludford (11) (12) has recently found that vital staining with trypan blue inhibits the immunity elicited by embryo skin to mouse adenocarcinoma 63 and also lowers the natural resistance of mice to the

growth of transplantable tumors. His experiments on induced resistance to adenocarcinoma 63 were repeated by the writer with similar results. These findings may be regarded as confirming his observations in this respect, and, in addition, show that by vital staining with large doses of trypan blue, it is likewise possible not only to inhibit the production but also to destroy acquired resistance to mouse sarcoma 180.

ACQUIRED RESISTANCE TO SARCOMA 180 AND SPECIFICITY

Acquired immunity induced by some propagable growths is often effective against other transplantable tumors. Studies pertaining to the specificity of immunity elicited by sarcoma 180 have thus far been confined to but one other strain of tumor. This was the well-known mouse adenocarcinoma 63.[2] In this laboratory the tumor has grown progressively in about 70 per cent of inoculated mice. Young mice are more susceptible than adults. While Russell (5) found this tumor incapable of inducing resistance to reinoculation, the writer's observations in this respect have corresponded to those of Bullock and Rohdenburg (8) and, more recently, to those of Foulds (13), who have shown that substrains of this tumor were able to elicit immunity.

Acquired immunity produced by sarcoma 180 was quite effective against the growth of this carcinoma. The protocol of but one typical experiment will be presented at this time, as identical results were obtained in all the others.

Experiment 10

Thirteen mice immune to sarcoma 180 were each inoculated in one groin with a transplant of adenocarcinoma 63 and in the other groin with a transplant of the sarcoma. All control mice (10) inoculated with the sarcoma developed tumors and succumbed within six weeks. Of 55 controls for the adenocarcinoma, 42 grew tumors which ultimately brought about their deaths. None of the 13 test animals developed a tumor.

On the other hand, mice bearing adenocarcinoma 63 or possessing natural resistance to its growth were not immune to sarcoma 180, as shown by the following experiment:

Experiment 11

Seven mice negative to 2 previous inoculations of adenocarcinoma 63 and 7 mice bearing 1-month old tumors of the same strain were inoculated in the groin with sarcoma 180. The sarcoma grew in all the 14 test mice.

[2] This tumor was obtained through the courtesy of Dr. F. C. Wood, of the Crocker Institute for Cancer Research.

In 4 other similar experiments 30 mice immune to adenocarcinoma 63 were tested for resistance to transplants of sarcoma 180. None possessed any demonstrable immunity. The experiments recorded above demonstrate that immunity induced by sarcoma 180 is not specific and, in addition, that mice resistant to adenocarcinoma 63 are not resistant to sarcoma 180. Further investigations on the specificity of immunity induced by sarcoma 180 are now in progress.

Apparently, mice refractory to inoculation of sarcoma 180 possess a high degree of immunity. There are several reasons for this statement. In the first place the tumor is very malignant, since it grows in practically 100 per cent of all strains of mice and regresses in a very small percentage of the animals. Secondly, it is exceedingly difficult, if not impracticable, to immunize mice against an active strain of sarcoma 180 by the inoculation of embryo-skin emulsion, a procedure which produces a fair degree of resistance to adenocarcinoma 63. Finally, mice immune to adenocarcinoma 63 are not immune to sarcoma 180, while mice resistant to sarcoma 180 are also resistant to adenocarcinoma 63.

From the results of experiments presented in this communication, it is evident that caudal inoculation of mice with sarcoma 180 furnishes a considerable number of mice which possess a high degree of resistance to reimplantation of this tumor. The procedure is being employed for carrying out further studies on tumor immunity.

SUMMARY

It is advisable to omit any generalizations based upon the experiments recorded in this paper, since but one strain of tumor has been used. However, the results attending the use of mouse sarcoma 180 may be summarized as follows:

1. The tumor grows when implanted in the tails of mice, but the tail is not so favorable a site as the groin for the progressive growth of the tumor.
2. The rate of growth of caudal tumors is influenced by the natural resistance of the inoculated animals and the growth energy of the tumor employed as inoculum.
3. Low temperatures have a pronounced effect upon caudal tumors by inhibiting their rate of growth.
4. A single caudal inoculation of the tumor induces concomitant immunity in about 60 per cent of adult female mice. This resistance reaches its peak in about two weeks after tail inoculation. It appears as though immunity is induced more readily in female than in male mice.
5. Reinoculation of the tail increases the yield of immune animals.
6. Several factors influence fluctuations in immunity induced in mice by the growth of tail tumors. The first is an unknown inherent

property of the tumor itself; the second is the rate of growth of the tumor—a slow-growing tumor does not induce immunity to the same degree as one which undergoes normal development; the third is the natural resistance of the inoculated animals—highly susceptible mice are unable to acquire resistance to the same extent as animals which possess some degree of natural resistance.

7. Reinoculation with the tumor in some instances affects the activity of tumor cells already present within the body of the mouse.

8. It appears as though growth of the tumor cells is essential for the production of acquired resistance.

9. Mice immunized by a caudal tumor are resistant to an autograft from the tumor inducing the resistance.

10. Intravenous injections of india ink inhibit the production of acquired immunity to the tumor.

11. Subcutaneous injections of trypan blue also inhibit the production of immunity and, in addition, destroy an established resistance to the tumor.

12. Immunity induced by the tumor is also effective against mouse adenocarcinoma 63. Hence the immunity is not specific to mouse sarcoma 180.

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BIOLOGICAL PRODUCTS

ESTABLISHMENTS LICENSED FOR THE PROPAGATION AND SALE OF VIRUSES, SERUMS, TOXIN , AND ANALOGOUS PRODUCTS

There is presented herewith a list of the establishments holding licenses issued by the Treasury Department in accordance with the act of Congress approved July 1, 1902, entitled "An act to regulate the sale of viruses, serums, toxins, and analogous products in the

District of Columbia, to regulate interstate traffic in said articles, and for other purposes."

The licenses granted to these establishments for the products mentioned do not imply an indorsement of the claims made by the manufacturers for their respective preparations. The granting of a license means that inspection of the establishment concerned and laboratory examinations of samples of its products are made regularly to insure the observance of safe methods of manufacture, to ascertain freedom from contamination, and to determine the potency, or safety, or both, of diphtheria antitoxin, scarlet fever streptococcus antitoxin, tetanus antitoxin, botulinus antitoxin, antidysenteric serum, antimeningococcic serum, antipneumococcic serum, bacterial vaccines made from typhoid bacillus, paratyphoid bacillus A, and paratyphoid bacillus B, diphtheria toxin-antitoxin mixture, diphtheria toxoid, diphtheria toxin for Schick test, scarlet fever streptococcus toxin for Dick test, scarlet fever streptococcus toxin for immunization, and the arsphenamines, the only products for which potency standards or tests have been established.

The enumeration of the products is as follows: Serums are placed first, the antitoxins, being more important, heading the list. The other products are arranged generally in the order of their origin. The items in each class are arranged alphabetically.

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Parke, Davis & Co., Detroit, Mich.—License No. 1:

Diphtheria antitoxin; perfringens antitoxin; scarlet fever streptococcus antitoxin; tetanus antitoxin-vibrion septique antitoxin; antianthrax serum; antidysenteric serum, antigonococcic serum; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum; hemostatic serum (Lapenta); normal horse serum; thyroidectomized horse serum, vaccine virus, rabies vaccine (Cumming); tuberculin old; tuberculin T. R.; tuberculin B. E.; tuberculin B. F.; bacterial vaccines made from acne bacillus, acne diplococcus, Brucella melitensis, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, prodigiosus bacillus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus and typhoid bacillus; diphtheria toxin-antitoxin mixture, diphtheria toxoid-antitoxin mixture; diphtheria toxoid, diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization, animal epidermal extracts; animal food extracts; vegetable food extracts; pollen extracts; modified bacterial derivatives made from colon bacillus, gonococcus, paratyphoid bacillus A, paratyphoid bacillus B, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; bacterial antigen made from colon bacillus, gonococcus, pertussis bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, and streptococcus.

Mulford Biological Laboratories, Sharp & Dohme, Broad and Wallace Streets, Philadelphia, Pa.—License No. 2:

Diphtheria antitoxin; erysipelas streptococcus antitoxin; B. histolyticus antitoxin; B. odematiens antitoxin, perfringens antitoxin, scarlet fever streptococcus antitoxin; B. sordelli antitoxin; tetanus antitoxin, vibrion septique antitoxin; antianthrax serum; antidysenteric serum, antigonococcic serum; antimelitensis serum; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum, antivenin (Nearctic crotalidae); antivenin Bothropic; antivenin (crotalus terrificus); normal horse serum, vaccine virus; rabies vaccine (Pasteur); rabies vaccine (killed virus); tuberculin old; tuberculin T. R.; tuberculin B. E.; tuberculin B. F.; bacterial vaccines made from acne bacillus, cholera vibrio, colon bacillus, dysentery bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, micrococcus melitensis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, plague bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; sensitized bac-

terial vaccines made from acne bacillus, cholera vibrio, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococus aureus, streptococcus, and typhoid bacillus; diyhtheria toxin-antixin mixture; diphtheria toxoid; diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization; pollen extracts; animal epidermal extracts; animal food extracts; vegetable food extracts; poison ivy extracts; poison oak extract; pneumococcus antibody solution; bacterial antigen made from streptococci.

The Cutter Laboratory, Berkeley, Calif.—License No. 8:

Diphtheria antitoxin; B. odematiens antitoxin; perfringens antitoxin; scarlet fever streptococcus antitoxin; B. Sordelli antitoxin; tetanus antitoxin; vibrion septique antitoxin; antianthrax serum; antistreptococcic serum; normal horse serum; vaccine virus; rabies vaccine (Pasteur); rabies vaccine (killed virus); tuberculin old; tuberculin B. F.; bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhlis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; diphtheria toxin-antitoxin mixture; diphtheria toxoid; diphtheria toxin for Schick test; pollen extracts; poison ivy extract; poison oak extract.

Bureau of Laboratories, Department of Health, Foot East Sixteenth Street, New York City.—License No 14:

Vaccine virus.

Lederle Laboratories (Inc.), Pearl River, N. Y.—License No. 17:

Diphtheria antitoxin; erysipelas streptococcus antitoxin; B. histolyticus antitoxin; B. odematiens antitoxin; perfringens antitoxin; B. sordelli antitoxin; tetanus antitoxin; vibrion septique antitoxin; antianthrax serum; antidysenteric serum; antigonococcic serum; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum; measles immune serum; normal horse serum; vaccine virus; rabies vaccine (killed virus); tuberculin old; tuberculin B. E.; tuberculin B. F.; bacterial vaccines made from acne bacillus, brucella melitensis, cholera vibrio, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, plague bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, staphylococcus citreus, streptococcus, and typhoid bacillus; diphtheria toxin-antitoxin mixture; diphtheria toxoid; diphtheria toxin for Schick test; pollen extracts; poison ivy extract; poison oak extract; animal epidermal extracts; animal food extracts; vegetable food extracts.

Bacterio-Therapeutic Laboratory, Asheville, N. C.—License No. 23:

Watery extract of tubercle bacilli (von Ruck); modified tubercle bacillus derivative (von Ruck),

G. H. Sherman, M. D., Inc., 14600 East Jefferson Avenue, Detroit, Mich.—License No. 30:

Bacterial vaccines made from acne bacillus, brucella melitensis, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, nonvirulent tubercle bacillus, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, penumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; diphtheria toxoid; pollen extracts; bacterial antigens made from colon bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, and streptococcus.

The Abbott Laboratories, Fourteenth Street and C.-W. Interurban Railroad tracks, North Chicago, Ill.—License No. 43.

Bacterial vaccines made from acne bacillus, brucella melitensis, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, micrococcus tetragenus, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; bacterial antigen made from acne bacillus, B. coli, Friedländer bacillus, gonococcus, micrococcus catarrhalis, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus; pollen extracts; animal epidermal extracts; animal food extracts; vegetable food extracts.

The Upjohn Co., Kalamazoo, Mich.—License No. 51:

Bacterial vaccines made from colon bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; pollen extracts.

E. R. Squibb & Sons' Research and Biological Laboratories, New Brunswick, N. J.—License No. 52:

Diphtheria antitoxin, erysipelas streptococcus antitoxin, scarlet fever streptococcus antitoxin, tetanus antitoxin; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum; normal horse serum; vaccine virus; rabies vaccine (Pasteur); rabies vaccine (killed virus); bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, staphylococcus citreus, streptococcus, and typhoid bacillus; bacterial antigen made from staphylococcus aureus; leucocytic extract from the horse; diphtheria toxin-antitoxin mixture; diphtheria toxoid; diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization; pollen extracts; poison ivy extract; poison oak extract; arsphenamine, neoarsphenamine, sulpharsphenamine.

Eli Lilly & Co., Indianapolis, Ind.—License No. 56:

Diphtheria antitoxin; erysipelas streptococcus antitoxin; perfringens antitoxin; tetanus antitoxin; vibrion septique antitoxin; antimeningococcic serum; antistreptococcic serum; normal horse serum; hemostatic serum (Lilly), vaccine virus; rabies vaccine (Harris); tuberculin old; bacterial vaccines made from acne bacillus, cholera vibrio, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, plague bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; bacterial vaccine made from partially autolized pneumococci; diphtheria toxin-antitoxin mixture; diphtheria toxoid, diphtheria toxin for Schick test; bacterial antigen made from acne bacillus, colon bacillus, gonococcus, pneumococcus, staphylococcus albus and staphylococcus aureus, and streptococcus.

Gilliland Laboratories, Marietta, Pa.—License No. 63:

Diphtheria antitoxin; scarlet fever streptococcus antitoxin; tetanus antitoxin; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum; normal horse serum; vaccine virus; rabies vaccine (Pasteur); rabies vaccine (killed virus); tuberculin old; tuberculin B. E.; tuberculin B. F.; bacterial vaccines made from acne bacillus, gonococcus, influenza bacillus, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; diphtheria toxin-antitoxin mixture; diphtheria toxoid; diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization.

Antitoxin and Vaccine Laboratory, Department of Public Health, Commonwealth of Massachusetts, 375 South Street, Jamaica Plain, Boston 30, Mass.—License No. 64:

Diphtheria antitoxin; scarlet fever streptococcus antitoxin; antimeningococcic serum; antipneumococcic serum; vaccine virus; tuberculin old; bacterial vaccines made from paratyphoid bacillus A, paratyphoid bacillus B, and typhoid bacillus; diphtheria toxin-antitoxin mixture; diphtheria toxoid, diphtheria toxin for Schick test.

United States Standard Products Co., Woodworth, Wis.—License No. 65:

Diphtheria antitoxin; tetanus antitoxin; antimeningococcic serum; normal horse serum; vaccine virus; rabies vaccine (killed virus); bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, and streptococcus; and typhoid bacillus; bacterial antigens made from staphylcoccus albus, staphylococcus aureus; diphtheria toxin-antitoxin mixture; diphtheria toxoid; diphtheria toxin for Schick test.

D. L. Harris Laboratories, Metropolitan Building, St. Louis, Mo.—License No. 66:

Rabies vaccine (Harris).

The Arlington Chemical Co., Yonkers, N. Y.—License No. 67:

Bacterial vaccines made from colon bacillus, micrococcus catarrhalis, micrococcus tetragenus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, staphylococcus citreus, streptococcus; pollen extracts; animal epidermal extracts, animal food extracts; vegetable food extracts.

Dermatological Research Laboratories, 1720 Lombard Street, Philadelphia, Pa. (branch of Abbott Laboratories, Chicago, Ill.)—License No. 68:

Arsphenamine; neoarsphenamine; sulpharsphenamine; bismuth arsphenamine sulphonate; neosilver arsphenamine.

H. A. Metz Laboratories, 33 Riverside Avenue, Rensselaer, N. Y.—License No. 69:

Arsphenamine; arsphenamine diglucoside; neoarsphenamine; sodium arsphenamine; silver arsphenamine; neosilver arsphenamine; sulpharsphenamine.

Diarsenol Co. (Inc.), 771 Ellicott Square, Buffalo, N. Y.—License No. 70:

Arsphenamine; neoarsphenamine; sodium arsphenamine, sulpharsphenamine.

Mallinckrodt Chemical Works, St. Louis, Mo.—License No. 77:

Arsphenamine; neoarsphenamine; sulpharsphenamine.

Merck & Co. (Inc.), 916 Parrish Street, Philadelphia, Pa.—License No. 82:

Arsphenamine; neoarsphenamine; sulpharsphenamine; a compound of glucose with arsphenamine base.

Terrell Laboratories, Texas National Bank Building, Fort Worth, Tex. License No. 84:

Rabies vaccine (killed virus).

Jensen-Salsbery Laboratories, Twenty-first and Penn Street, Kansas City, Mo.—License No. 85:

Botulinus antitoxin; antianthrax serum; rabies vaccine (killed virus); bacterial vaccine made from brucella melitensis.

The Neosol Co., 72 Kingsley Street, Buffalo, N. Y.—License No. 90:

Solution of neoarsphenamine; solution of sulpharsphenamine.

Hollister Stier Laboratories, Paulson Medical and Dental Building, Spokane, Wash.—License No. 91:
Bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, pertussis bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus, and xerosis bacillus; pollen extracts.

Medical Arts Laboratory, Medical Arts Building, Oklahoma City, Okla.—License No. 98:
Rabies vaccine (killed virus).

Bureau of Laboratories, Michigan State Department of Health, Lansing, Mich.—License No. 99:
Diphtheria antitoxin; scarlet fever streptococcus antitoxin; tetanus antitoxin; vaccine virus; rabies vaccine (Cumming); bacterial vaccine made from paratyphoid bacillus A, paratyphoid bacillus B, and typhoid bacillus; diphtheria toxin-antitoxin mixture; diphtheria toxoid; diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization.

G. D. Searle & Co., 4735 Ravenswood Avenue, Chicago, Ill.—License No. 100:
Arsphenamine; neoarsphenamine; sulpharsphenamine.

National Drug Co., 5109 Germantown Avenue, Philadelphia, Pa.—License No. 101:
Diphtheria antitoxin, perfringens antitoxin; tetanus antitoxin; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum; normal horse serum; tuberculin, old; vaccine virus; rabies vaccine (killed virus); bacterial vaccines made from acne bacillus, brucella melitensis, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; diphtheria toxin-antitoxin mixture; diphtheria toxoid; diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization; pollen extracts.

American Chemical Laboratories, 5109 Germantown Avenue, Philadelphia, Pa.—License No. 102:
Poison ivy extract; poison oak extract.

Allergy Laboratories, 1200 North Walker Street, Oklahoma City, Okla.—License No. 103:
Pollen extracts; vegetable food extracts; animal epidermal extracts.

Hixson Laboratories (Inc.), Johnstown, Ohio.—License No. 104:
Diphtheria antitoxin; tetanus antitoxin; rabies vaccine (killed virus); diphtheria toxin-antitoxin mixture; diphtheria toxoid; diphtheria toxin for Schick test.

C. F. Kirk Co., Bloomfield, N. J.—License No. 105:
Bacterial vaccines made from acne bacillus, colon bacillus, Friedlander bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus and typhoid bacillus.

The Porro Biological Laboratories, Rhodes Medical Arts Building, Tacoma, Wash.—License No. 107:
Pollen extracts.

Knapp & Knapp, North Hollywood, Calif.—License No. 108:
Pollen extracts.

Allen-Sandlin Laboratories, 225 Breslin Building, Louisville, Ky.—License No. 109:
Bacterial antigens made from staphylococcus albus, staphylococcus aureus, and streptococcus.

FOREIGN ESTABLISHMENTS

Institut Pasteur de Paris, Paris, France.—License No. 11. Selling agents for the United States: Pasteur Laboratories of America, 366 West Eleventh Street, New York City:
Diphtheria antitoxin; tetanus antitoxin; antianthrax serum; antidysenteric serum; antiplague serum; antistreptococcic serum; bacterial vaccines made from cholera vibrio, plague bacillus, staphylococcus albus and staphylococcus aureus.

Interessen Gesellschaft Farbenindustrie Aktiengesellschaft, Hoechst am Main, Germany.—License No. 24. Selling agents for the United States: The Winthrop Chemical Company, 170, Varick Street, New York City:
Diphtheria antitoxin; tetanus antitoxin; antistreptococcic serum; normal horse serum; tuberculin old tuberculin T. R.; tuberculin B. E.; tuberculin B. F., bacterial vaccines made from cholera vibrio; gonococcus, staphylococcus albus, staphylococcus aureus, and staphylococcus citreus; typhoid bacillus; sensitized bacterial vaccine made from typhoid bacillus; trichophyton extract; arsphenamine; neoarsphenamine; sodium arsphenamine; silver arsphenamine; neosilver arsphenamine; sulpharsphenamine; sulphoxylarsphenamine

E. Merck, Darmstadt, Germany.—License No. 31. Selling agents for the United States: Merck & Co. 45-47 Park Place, New York City: Tuberculin Ointment (Moro).

Connaught Antitoxin Laboratory, University of Toronto, Toronto, Canada.—License No. 73:
Diphtheria antitoxin; tetanus antitoxin; diphtheria toxoid.

Laboratoire de Biochimie Médicale, 19-21 Rue Van-Loo, Paris, France.—License No. 83. Selling agents for the United States: Anglo-French Drug Co., 1270 Broadway, New York City. Selling agents for Puerto Rico: Chas. Vere, Box 216, San Juan, P. R.: Sulpharsphenamine.

Istituto Sieroterapico Milanese, via Darwin 20, Milan, Italy.—License No. 87. Selling agents for the United States: Opo-Pharmacal Co., 27 Cleveland Place, New York City:

Antianthrax serum; bacterial vaccines made from gonococcus, pneumococcus, staphylococcus albus, staphylococcus aureus, staphylococcus citreus and streptococcus; neoarsphenamine.

Boots Pure Drug Co., Ltd., Nottingham, England.—License No. 92. Selling agents for the United States: The United Drug Co., 43 Leon Street, Boston, Mass.: Arsphenamine diglucoside.

Etablissements Mouneyrat, Villaneuve-la-Garenne, Seine, France.—License No. 94. Selling agents for the United States: G. J. Wallau, 153 Waverly Place, New York City: Phospharsphenamine.

Sero-Bacteriological Department, Bayer-Meister-Lucius, Behringswerke, I. G. Farbenindustrie, A. G. Section, Marburg-Lahn, Germany.—License No. 97. Selling agents for the United States: The Winthrop Chemical Co., 170 Varick Street, New York City.

Bacterial vaccines made from colon bacillus, gonococcus, pneumococcus, pyocyaneus bacillus, staphylococcus albus, and staphylococcus aureus, streptococcus.

Laboratoire de Bacteriophage, 75 rue Olivier de Serres, Paris, France.—License No. 108:

Bacterial antigens made from colon bacillus, dysentery bacillus, enterococcus, Frieldlander bacillus, paratyphoid bacillus A, paratyphoid bacillus B, pneumococcus, proteus bacillus, pyocyaneous bacillus, staphylococcus, streptococcus and typhoid bacillus.

DEATHS DURING WEEK ENDED AUGUST 20, 1932

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Aug. 20, 1932	Corresponding week, 1931
Data from industrial-insurance companies		
Policies in force	71, 207, 172	74, 973, 572
Number of death claims	11, 355	12, 270
Death claims per 1,000 policies in force, annual rate	8. 3	8. 5
Death claims per 1,000 policies, first 33 weeks of year, annual rate	9. 9	10. 1
Data from 85 large cities of the United States:		
Total deaths	6, 567	6, 929
Deaths per 1,000 population, annual basis	9 4	10 0
Deaths under 1 year of age	605	620
Deaths under 1 year of age per 1,000 estimated live births [1]	50	48
Deaths per 1,000 population, annual basis, first 33 weeks of year	11. 5	12. 4

[1] 1932, 81 cities; 1931, 77 cities.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended August 27, 1932, and August 29, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended August 27, 1932, and August 29, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Aug 27, 1932	Week ended Aug. 29, 1931	Week ended Aug 27, 1932	Week ended Aug. 29, 1931	Week ended Aug. 27, 1932	Week ended Aug. 29, 1931	Week ended Aug. 27, 1932	Week ended Aug. 29, 1931
New England States:								
Maine	1			1		8	0	0
New Hampshire		1					0	0
Vermont					2	1	0	0
Massachusetts	14	29	1	4	27	18	2	2
Rhode Island	2				1	18	0	2
Connecticut	5	8	1		14	3	0	1
Middle Atlantic States:								
New York	42	53	[1] 3	[1] 4	106	90	5	5
New Jersey	11	17	1	1	59	18	0	2
Pennsylvania	30	35			40	69	7	13
East North Central States:								
Ohio	24	32	1	12	8	37	1	4
Indiana	35	10	17	12	5	17	4	5
Illinois [2]	37	52	2		33	25	0	3
Michigan	3	14	8		39	12	2	2
Wisconsin	7	10	20	10	27	18	8	2
West North Central States.								
Minnesota	4	5	1	1	5	3	0	2
Iowa	4	1			1	2	0	1
Missouri	9	22	2	3	5	3	1	8
North Dakota	2	2			7	2	1	0
South Dakota	3	4				1	1	1
Nebraska	8	5			3	3	0	1
Kansas	9	6	3		89	1	0	0
South Atlantic States:								
Delaware							0	
Maryland [2] [3]	16	13	13	1	3	5	0	2
District of Columbia	5	9		2	2	1	0	0
Virginia	19				25		0	
West Virginia	15	7	11		23	31	0	3
North Carolina	35	42	2	3	23	10	1	0
South Carolina [2]	10	14	99	144	22	5	1	0
Georgia [2]	15	23	18	2	7	31	0	0
Florida	14	6	1	1	2		0	0
East South Central States:								
Kentucky	43	24				20	2	2
Tennessee	38	16	8	9	2	3	1	2
Alabama [2]	39	57	7	6	1	4	1	0
Mississippi	27	50					0	1

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended August 27, 1932, and August 29, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Aug. 27, 1932	Week ended Aug. 29, 1931	Week ended Aug. 27, 1932	Week ended Aug. 29, 1931	Week ended Aug. 27, 1932	Week ended Aug. 29, 1931	Week ended Aug. 27, 1932	Week ended Aug. 29, 1931
West South Central States:								
Arkansas	10	22	7	5		2	0	1
Louisiana [2]	17	24	6	1	2	5	1	0
Oklahoma [4]	26	23	13	18			0	2
Texas [2]	43	16	5	3	8	3	0	0
Mountain States:								
Montana		5			106	13	1	0
Idaho		1				1	0	1
Wyoming						1	0	0
Colorado	8	8			4	5	0	0
New Mexico	6						0	0
Arizona	2		2		1		0	2
Utah		1		3	1		1	0
Pacific States:								
Washington	2	3			4	4	0	0
Oregon	6	5	7	10	15	2	0	0
California [2]	38	30	160	15	28	49	2	2
Total	684	695	419	271	750	545	38	67

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Aug. 27, 1932	Week ended Aug. 29, 1931	Week ended Aug. 27, 1932	Week ended Aug. 29, 1931	Week ended Aug. 27, 1932	Week ended Aug 29, 1931	Week ended Aug. 27, 1932	Week ended Aug. 29, 1931
New England States:								
Maine	0	6	8	7	0	0	4	1
New Hampshire	0	4	1	1	0	0	0	0
Vermont	0	5	8	2	0	4	0	0
Massachusetts	1	135	78	65	0	0	8	10
Rhode Island	2	20	9	6	0	0	1	6
Connecticut	1	134	7	9	0	0	0	9
Middle Atlantic States:								
New York	22	612	109	93	8	2	11	62
New Jersey	33	103	38	26	0	0	12	11
Pennsylvania	136	9	77	51	0	0	68	41
East North Central States:								
Ohio	0	18	62	103	1	3	70	29
Indiana	0	3	33	16	1	9	29	17
Illinois [2]	6	38	60	63	0	11	42	43
Michigan	5	76	51	67	0	7	14	14
Wisconsin	1	61	12	14	0	0	0	3
West North Central States:								
Minnesota	7	39	14	16	0	1	6	4
Iowa	1	8	8	8	4	8	7	3
Missouri	0	4	10	16	0	2	48	14
North Dakota	4	0	9	1	0	3	2	10
South Dakota	2	0	1	1	0	1	5	4
Nebraska	1	1	12	6	1	1	7	5
Kansas	2	1	17	18	0	0	15	7
South Atlantic States:								
Delaware	0		4	3	0		3	3
Maryland [2] [3]	2	1	23	12	0	0	31	32
District of Columbia	1	0	6	3	0	0	2	2
Virginia	2	2	32		0		47	
West Virginia	4	10	14	13	0	0	73	38
North Carolina	1	4	32	33	0	0	22	32
South Carolina [2]	4	2	6	11	0	0	36	60
Georgia [2]	0	7	19	40	0	7	64	65
Florida	0	0	2	1	0	0	4	1
East South Central States:								
Kentucky	0	1	33	19	0	5	98	47
Tennessee	3	1	18	27	1	5	94	79
Alabama [2]	1	0	28	23	0	0	43	39
Mississippi	1	2	7	14	4	3	26	46

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended August 27, 1932, and August 29, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Aug. 27, 1932	Week ended Aug. 29, 1931	Week ended Aug. 27, 1932	Week ended Aug 29, 1931	Week ended Aug. 27, 1932	Week ended Aug. 29, 1931	Week ended Aug. 27, 1932	Week ended Aug. 29, 1931
West South Central States:								
Arkansas	1	1	8	3	1	9	20	65
Louisiana [2]	1	0	6	16	0	2	36	55
Oklahoma [4]	0	0	12	12	1	5	55	34
Texas [2]	0	1	16	8	3	1	33	14
Mountain States:								
Montana	0	3	4	10	2	2	7	0
Idaho	0	0	1	7	0	0	7	3
Wyoming	0	1	4	0	8	0	0	1
Colorado	1	0	11	15	0	6	9	2
New Mexico	0	1	6	4	0	0	2	6
Arizona	1	0	0	0	0	0	6	5
Utah	0	0	0	2	0	0	1	1
Pacific States:								
Washington	2	0	8	11	5	25	7	7
Oregon	2	1	7	9	1	11	4	6
California [2]	2	6	34	54	4	5	11	19
Total	253	1,321	965	939	45	138	1,090	964

[1] New York City only.
[2] Typhus fever, week ended Aug 27, 1932, 38 cases: 1 case in Illinois, 1 case in Maryland, 1 case in South Carolina, 19 cases in Georgia, 8 cases in Alabama, 3 cases in Louisiana, 4 cases in Texas, and 1 case in California
[3] Week ended Friday.
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa, and for 1931 are exclusive of Tulsa only.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week:

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
May, 1932										
Hawaii Territory	8	28	2		75		1	6	0	1
June, 1932										
Hawaii Territory	2	24	914		23		2	3	0	5
Puerto Rico		42	6	2,064	165	1	3		0	42
July, 1932										
Colorado		34			75		0	42	21	29
Delaware							0	17	0	2
Idaho	2	11			8		0	25	14	24
Kansas	2	29	1	3	137		5	57	8	55
Louisiana	1	51	22	93	34	90	0	18	0	219
Montana	2	6	3		85		0	27	20	12
New Hampshire		4						48		2
Oklahoma [1]	2	39	46	194	37	25	1	44	28	178
Oregon	1	5	32	1	138		1	29	19	14
Pennsylvania	19	166			1,421	1	32	726	0	108
Washington	1	14	82		170		4	52	46	13

[1] Exclusive of Oklahoma City and Tulsa.

May, 1932

	Cases
Hawaii Territory:	
Chicken pox	58
Conjunctivitis, follicular	43
Hookworm disease	38
Leprosy	6
Lethargic encephalitis	1
Mumps	3
Streptococcic sore throat	3
Trachoma	1
Whooping cough	1

June, 1932

	Cases
Chicken pox:	
Hawaii Territory	38
Puerto Rico	27
Colibacillosis:	
Puerto Rico	1
Conjunctivitis, follicular:	
Hawaii Territory	5
Dysentery:	
Puerto Rico	23
Filariasis:	
Puerto Rico	1
Hookworm disease:	
Hawaii Territory	42
Impetigo contagiosa:	
Hawaii Territory	1
Leprosy:	
Hawaii Territory	6
Puerto Rico	2
Mumps:	
Hawaii Territory	8
Puerto Rico	14
Opthalmia neonatorum:	
Puerto Rico	4
Paratyphoid septicemia:	
Puerto Rico	5
Puerperal septicemia:	
Puerto Rico	16
Tetanus:	
Hawaii Territory	3
Puerto Rico	4
Tetanus, infantile:	
Puerto Rico	33
Trachoma:	
Hawaii Territory	1
Puerto Rico	2
Whooping cough:	
Puerto Rico	91
Yaws:	
Puerto Rico	2

July, 1932

	Cases
Anthrax:	
Louisiana	1
Chicken pox:	
Colorado	89
Delaware	1
Idaho	39
Kansas	35
Montana	30
Oklahoma [1]	5
Oregon	38
Pennsylvania	635
Washington	74
Dysentery:	
Louisiana	5
Montana	1
Oklahoma [1]	40
Oregon	1
Food poisoning:	
Kansas	2
German measles:	
Colorado	1
Kansas	3
Montana	2
Pennsylvania	28
Washington	4
Hookworm disease:	
Louisiana	12
Impetigo contagiosa:	
Kansas	2
Montana	27
Oregon	21
Jaundice, epidemic:	
Colorado	3
Leprosy.	
Louisiana	2
Lethargic encephalitis:	
Louisiana	2
Oregon	2
Pennsylvania	4
Washington	6
Mumps:	
Colorado	83
Delaware	2
Idaho	17
Kansas	38
Montana	22
Oklahoma [1]	9
Oregon	26
Pennsylvania	697
Washington	30
Ophthalmia neonatorum:	
Louisiana	1
Oklahoma [1]	2
Pennsylvania	7
Paratyphoid fever:	
Colorado	2
Kansas	6
Louisiana	3
Oregon	1
Puerperal septicemia:	
Pennsylvania	13
Washington	3
Rabies in animals:	
Delaware	1
Louisiana	9
Washington	1
Rocky Mountain spotted or tick fever:	
Colorado	1
Delaware	1
Idaho	3
Montana	11
Oregon	6
Scabies:	
Montana	1
Oklahoma [1]	1
Oregon	5

[1] Exclusive of Oklahoma City and Tulsa.

	Cases
Septic sore throat:	
Colorado	1
Louisiana	2
Montana	2
Oklahoma [1]	16
Oregon	2
Silicosis:	
Montana	2
Tetanus.	
Kansas	2
Louisiana	7
Pennsylvania	6
Trachoma:	
Kansas	1
Montana	2
Oklahoma [1]	7
Pennsylvania	1
Trench mouth.	
Oklahoma [1]	2
Oregon	2
Tularaemia·	
Colorado	1
Louisiana	1
Oregon	1
Typhus fever:	
Delaware	1
Louisiana	1

	Cases
Undulant fever:	
Idaho	1
Kansas	3
Louisiana	8
Montana	3
Pennsylvania	5
Washington	3
Vincent's angina:	
Colorado	11
Kansas	8
Oklahoma [1]	5
Oregon	5
Vincent's infection:	
Washington	1
Whooping cough:	
Colorado	160
Delaware	21
Idaho	12
Kansas	356
Louisiana	14
Montana	216
Oklahoma [1]	72
Oregon	101
Pennsylvania	1,961
Washington	69

[1] Exclusive of Oklahoma City and Tulsa.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 94 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 33,735,000. The estimated population of the 87 cities reporting deaths is more than 32,175,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended August 20, 1932, and August 22, 1931

	1932	1931	Estimated expectancy
Cases reported			
Diphtheria:			
46 States	571	559	
94 cities	149	192	338
Measles:			
45 States	737	574	
94 cities	231	179	
Meningococcus meningitis.			
46 States	45	88	
94 cities	19	31	
Poliomyelitis:			
46 States	184	1,135	
Scarlet fever:			
46 States	845	821	
94 cities	275	275	225
Smallpox:			
46 States	45	103	
94 cities	10	7	12
Typhoid fever:			
46 States	1,112	958	
94 cities	161	133	150
Deaths reported			
Influenza and pneumonia:			
87 cities	263	306	
Smallpox:			
87 cities	0	0	

City reports for week ended August 20, 1932

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded, and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1923 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	2	1	0	----------	0	0	0	0
New Hampshire:								
Concord	0	0	0	----------	0	0	0	0
Nashua	0	0	0	----------	0	0	0	0
Vermont:								
Barre	0	0	0	----------	0	0	0	0
Burlington	0	0	0	----------	0	0	0	0
Massachusetts:								
Boston	7	12	5	----------	0	16	9	7
Fall River	0	1	0	----------	0	4	1	1
Springfield	3	1	0	----------	0	1	0	1
Worcester	0	2	1	----------	0	2	1	1
Rhode Island:								
Pawtucket	0	0	0	----------	0	0	0	0
Providence	1	2	1	----------	0	0	0	2
Connecticut:								
Bridgeport	0	2	0	----------	0	1	0	0
Hartford	----------	1	----------	----------	----------	----------	----------	----------
New Haven	3	0	1	----------	0	0	0	0
MIDDLE ATLANTIC								
New York:								
Buffalo	0	5	2	----------	0	4	0	4
New York	13	78	21	4	4	41	48	75
Rochester	1	2	0	----------	0	1	1	0
Syracuse	8	1	0	----------	0	2	1	2
New Jersey:								
Camden	2	1	4	----------	0	0	0	1
Newark	1	6	0	2	0	17	10	2
Trenton	0	0	0	----------	0	2	0	0
Pennsylvania:								
Philadelphia	4	24	2	2	2	3	10	11
Pittsburgh	2	8	2	----------	0	3	1	8
Reading	0	0	0	----------	0	3	0	1
Scranton	0	----------	1	----------	----------	0	0	----------
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	0	2	1	----------	1	0	0	6
Cleveland	5	14	2	2	2	2	7	5
Columbus	2	2	2	----------	0	2	0	1
Toledo	2	2	3	1	0	2	0	0
Indiana:								
Fort Wayne	0	1	2	----------	1	0	0	1
Indianapolis	1	2	0	----------	0	0	8	2
South Bend	0	0	0	----------	0	0	0	0
Terre Haute	0	0	0	----------	0	0	0	0
Illinois:								
Chicago	15	46	17	----------	3	10	2	15
Springfield	0	0	2	----------	0	0	0	0
Michigan:								
Detroit	5	21	4	1	0	53	4	10
Flint	1	1	0	----------	0	1	0	0
Grand Rapids	0	0	1	----------	0	0	2	2

City reports for week ended August 20, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—continued								
Wisconsin:								
Kenosha	3	0	0		0	2	0	0
Madison	0	0	0			2	0	
Milwaukee	7	6	1		0	5	0	3
Racine	4	0	2		0	0	1	1
Superior	1	0	0		0	0	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth	0	0	0		0	0	0	2
Minneapolis	1	7	0		0	4	1	0
St. Paul	2	3	1	1	1	0	0	2
Iowa:								
Des Moines	0	0	0			0	0	
Sioux City	0	0	1			0	0	
Waterloo	0	0	0			0	0	
Missouri:								
Kansas City	1	1	0		0	1	4	8
St. Joseph	0	0	2		0	0	0	0
St. Louis	1	11	6			0	3	1
North Dakota:								
Fargo	0	1	0		0	0	0	0
Grand Forks	0	0	0			0	0	
Nebraska:								
Omaha	0	2	5		0	0	0	0
Kansas:								
Topeka	0	0	0		0	6	0	0
Wichita	0	0	0		0	0	0	1
SOUTH ATLANTIC								
Delaware:								
Wilmington	0	0	0		0	1	0	2
Maryland:								
Baltimore	3	8	3	2	0	4	7	6
Cumberland	0	0	0		0	0	0	0
Frederick	0	0	0		0	0	0	0
District of Columbia:								
Washington	4	5	0	1	1	0	0	3
Virginia:								
Lynchburg	0	1	0		0	0	0	0
Norfolk	0	1	1		0	0	0	0
Richmond	0	4	0		0	0	0	1
Roanoke	2	1	0		0	0	0	0
West Virginia:								
Charleston	0	0	0	1	0	0	0	0
Huntington	0		0		0	0	0	0
Wheeling	0	0	0		0	2	0	1
North Carolina:								
Raleigh	0	0	0		0	1	0	1
Wilmington	0	0	1		0	0	0	1
Winston-Salem	0	1	1		0	11	0	1
South Carolina:								
Charleston	0	0	0	2	0	0	0	0
Columbia	0	1	0		0	0	0	0
Georgia:								
Atlanta	0	1	2		0	0	0	4
Brunswick	0	0	0		0	0	0	0
Savannah	0	0	2		0	4	1	0
Florida:								
Miami	0	1	0		0	0	0	0
Tampa	0	0	1		0	0	1	1
EAST SOUTH CENTRAL								
Kentucky:								
Covington		0						
Lexington	0		0	1	0	0	0	0
Louisville	0		2	1	0	0	1	0

City reports for week ended August 20, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL—continued								
Tennessee:								
Memphis	0	1	0		1	0	0	4
Nashville	0	1	0		0	1	0	3
Alabama:								
Birmingham	0	2	2		1	0	0	2
Mobile	0	0	1		0	0	0	2
Montgomery	0	0	1			0	0	
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith	0	0	0			0	0	
Little Rock	0	0	0		0	0	0	0
Louisiana:								
New Orleans	0	5	5		0	0	0	7
Shreveport	0	0	0		0	0	0	2
Oklahoma:								
Muskogee	0		0		0	0	2	0
Oklahoma City	0	0	4		0	0	0	4
Texas:								
Dallas	0	4	14		0	0	0	4
Fort Worth	0	0	3		0	0	0	1
Galveston	0	0	0		0	0	0	0
Houston	0	3	3		1	0	0	2
San Antonio	0	2	1		0	0	0	3
MOUNTAIN								
Montana:								
Billings		0						
Great Falls	2	0	0		0	2	0	0
Helena	0	0	0		0	0	0	0
Missoula	0	0	0		0	0	0	0
Idaho:								
Boise	0	1	0		0	2	0	0
Colorado:								
Denver	3	5	5		0	3	5	4
Pueblo	0	0	0		0	0	0	0
New Mexico:								
Albuquerque	0	0	0		0	0	0	0
Utah:								
Salt Lake City	2	1	0		0	2	2	2
Nevada:								
Reno	0	0	0		0	0	0	0
PACIFIC								
Washington:								
Seattle	1	1	2			0	0	
Spokane	2	1	0			0	0	
Tacoma	0	2	0		0	0	0	2
Oregon:								
Portland	1	2	0		1	0	1	1
California:								
Los Angeles	7	16	14	49	1	10	7	9
Sacramento	0	0	1		0	0	0	0
San Francisco	8	5	2	1	0	2	3	1

City reports for week ended August 20, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	0	0	0	0	0	1	1	2	0	5	16
New Hampshire:											
Concord	0	0	0	0	0	0	0	0	0	0	8
Nashua	0	0	0	0	0	0	0	0	0	0	-------
Vermont:											
Barre	0	1	0	0	0	0	0	0	0	0	6
Burlington	1	1	0	0	0	0	0	0	0	1	9
Massachusetts:											
Boston	14	20	0	0	0	9	2	2	0	48	168
Fall River	0	1	0	0	0	1	1	0	0	2	22
Springfield	1	0	0	0	0	1	0	0	0	2	24
Worcester	2	4	0	0	0	1	0	0	0	8	34
Rhode Island:											
Pawtucket	0	0	0	0	0	0	0	0	0	0	10
Providence	3	3	0	0	0	1	1	0	0	15	45
Connecticut:											
Bridgeport	1	2	0	0	0	1	0	0	0	4	2
Hartford	1	-------	0	-------	-------	-------	1	-------	-------	-------	-------
New Haven	1	0	0	0	0	1	0	1	0	7	27
MIDDLE ATLANTIC											
New York:											
Buffalo	5	9	0	0	0	5	1	1	0	27	114
New York	22	39	0	0	0	70	30	39	4	141	1,101
Rochester	2	7	0	0	0	1	0	0	0	0	56
Syracuse	1	2	0	0	0	1	0	0	0	29	33
New Jersey:											
Camden	0	3	0	0	0	4	0	4	1	3	29
Newark	3	5	0	0	0	5	1	0	1	32	86
Trenton	0	0	0	0	0	3	0	0	0	10	31
Pennsylvania:											
Philadelphia	14	12	0	0	0	18	7	14	0	28	354
Pittsburgh	6	13	0	0	0	11	3	0	0	22	138
Reading	0	1	0	0	0	0	0	0	0	11	18
Scranton	-------	2	-------	0	-------	-----	-------	2	-------	6	-------
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	4	4	0	0	0	9	4	0	0	5	110
Cleveland	9	22	0	0	0	15	3	3	0	39	162
Columbus	2	5	0	0	0	2	0	3	0	2	63
Toledo	2	4	1	0	0	0	2	0	0	17	49
Indiana:											
Fort Wayne	0	1	0	0	0	0	0	0	0	1	17
Indianapolis	2	1	1	0	0	2	1	3	0	15	-------
South Bend	1	1	0	0	0	1	0	1	0	0	11
Terre Haute	0	0	0	0	0	0	0	0	0	0	12
Illinois:											
Chicago	24	29	0	0	0	37	6	3	0	41	596
Springfield	0	2	0	0	0	0	1	3	0	0	-------
Michigan:											
Detroit	19	18	0	0	0	12	4	1	0	93	207
Flint	3	4	1	0	0	3	0	0	0	3	24
Grand Rapids	2	2	0	0	0	1	0	0	0	15	20
Wisconsin:											
Kenosha	0	0	0	0	0	0	0	0	0	5	5
Madison	1	0	0	0	-------	-------	1	0	-------	8	-------
Milwaukee	5	3	0	0	0	6	0	0	0	65	77
Racine	1	0	0	0	0	0	0	0	0	4	9
Superior	2	0	0	0	0	0	0	0	0	0	4
WEST NORTH CENTRAL											
Minnesota:											
Duluth	3	0	0	0	0	1	1	0	0	0	20
Minneapolis	8	2	1	0	0	1	1	0	0	8	77
St. Paul	6	1	0	0	0	4	0	0	0	23	47

City reports for week ended August 20, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL—contd.											
Iowa:											
Des Moines	2	1	1	0			0	0		0	25
Sioux City	0	0	0	1			0	0		2	
Waterloo	0	0	0	0			0	1		0	
Missouri:											
Kansas City	2	3	0	0	0	4	1	2	1	3	85
St. Joseph	0	0	0	0	0	0	1	0	0	1	16
St. Louis	8	3	1	0	0	13	5	5	0	4	172
North Dakota:											
Fargo	1	0	0	0	0	0	0	0	0	0	11
Grand Forks	1	0	0	0			0	0		0	
Nebraska:											
Omaha	1	1	0	0	0	0	1	0	0	2	53
Kansas:											
Topeka	1	0	0	0	0	0	0	1	0	3	14
Wichita	0	0	0	0	0	1	1	1	0	5	22
SOUTH ATLANTIC											
Delaware:											
Wilmington	0	1	0	0	0	3	0	0	0	1	27
Maryland:											
Baltimore	4	5	0	0	0	9	7	3	0	29	139
Cumberland	0	1	0	0	0	0	1	1	0	0	11
Frederick	0	0	0	0	0	0	0	0	0	0	1
District of Col.:											
Washington	4	2	0	0	0	14	3	1	0	6	148
Virginia:											
Lynchburg	0	1	0	0	0	0	1	1	0	9	10
Norfolk	1	0	1	0	0	0	1	1	0	0	20
Richmond	2	2	0	0	0	4	2	0	0	0	29
Roanoke	0	2	0	0	0	0	1	1	0	0	13
West Virginia:											
Charleston	0	0	0	0	0	3	1	3	0	3	25
Huntington		0			0	0	0		0	0	
Wheeling	0	0	0	0	0	1	0	1	0	2	22
North Carolina:											
Raleigh	0	0	0	0	0	1	0	2	0	1	16
Wilmington	0	0	0	0	0	0	1	0	0	3	9
Winston-Salem	0	0	1	0	0	0	1	1	0	6	11
South Carolina:											
Charleston	0	0	0	0	0	1	4	5	1	0	15
Columbia	0	0	0	0	0	0	1	1	0	1	
Georgia:											
Atlanta	3	2	1	0	0	4	4	2	0	4	58
Brunswick	0	0	0	0	0	0	0	1	0	0	5
Savannah	0	0	0	0	0	3	0	1	0	0	32
Florida:											
Miami	0	0	0	0	0	3	0	0	0	0	22
Tampa	0	0	0	0	0	0	0	0	0	0	24
EAST SOUTH CENTRAL											
Kentucky:											
Covington	0		0				0				
Lexington		0		0	0	2		9	0	0	19
Louisville		2		0	0	0		3	0	0	
Tennessee:											
Memphis	1	0	1	0	0	9	10	13	4	2	94
Nashville	0	2	0	0	0	3	6	4	2	2	36
Alabama:											
Birmingham	2	3	1	0	0	4	4	5	0	0	71
Mobile	0	0	0	0	0	0	0	2	0	0	17
Montgomery	1	0	0	0			2	1		0	
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	0	0	0			0	0		0	
Little Rock	0	1	0	0	0	0	1	1	0	0	
Louisiana:											
New Orleans	3	4	0	0	0	8	5	9	0	2	139
Shreveport	0	0	0	0	0	0	1	0	1	4	33

City reports for week ended August 20, 1932—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST SOUTH CENTRAL—con.											
Oklahoma:											
Muskogee	0	0	------	0	0	0	------	0	0	0	-------
Oklahoma City	1	4	0	0	0	3	------	5	1	0	37
Tulsa	------	------	------	------	------	------	------	------	------	------	-------
Texas:											
Dallas	3	2	0	0	0	2	3	6	2	2	48
Fort Worth	1	2	0	0	0	1	2	2	0	0	24
Galveston	0	0	0	0	0	1	0	0	0	0	12
Houston	1	0	0	0	0	3	2	0	1	0	65
San Antonio	0	0	0	0	0	5	1	0	0	0	60
MOUNTAIN											
Montana:											
Billings	0	------	0	------	------	------	0	------	------	------	-------
Great Falls	0	0	0	0	0	0	0	0	0	0	8
Helena	0	0	0	0	0	0	0	0	0	0	7
Missoula	0	0	0	0	0	0	0	0	0	0	2
Idaho:											
Boise	0	0	0	1	0	0	0	0	0	2	7
Colorado:											
Denver	2	3	0	0	0	6	1	0	1	18	77
Pueblo	0	0	0	0	0	0	1	0	0	5	8
New Mexico:											
Albuquerque	0	1	0	0	0	2	1	0	0	1	7
Utah:											
Salt Lake City	0	0	0	0	0	5	2	0	0	12	32
Nevada:											
Reno	0	0	0	0	0	0	0	1	0	0	5
PACIFIC											
Washington:											
Seattle	3	1	0	3	------	------	1	0	------	6	-------
Spokane	1	0	1	0	------	------	0	0	------	0	-------
Tacoma	2	2	1	1	0	0	1	0	0	2	14
Oregon:											
Portland	2	1	3	6	0	1	1	0	0	0	53
California:											
Los Angeles	8	12	2	4	0	22	3	1	0	63	225
Sacramento	1	1	0	0	0	1	0	2	1	0	17
San Francisco	5	4	0	0	0	11	2	2	1	7	130

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	1	0	0	0	0	0	3	1	0
Fall River	0	0	0	0	0	0	0	1	0
Rhode Island:									
Providence	0	0	0	0	0	1	0	0	0
MIDDLE ATLANTIC									
New York:									
Buffalo	1	1	1	1	0	0	1	0	0
New York	1	0	0	0	0	0	17	13	4
New Jersey:									
Camden	0	0	0	0	0	0	0	2	0
Newark	2	0	1	0	0	0	1	0	0
Trenton	0	1	0	0	0	0	0	1	1

City reports for week ended August 20, 1932—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
MIDDLE ATLANTIC—continued									
Pennsylvania:									
Philadelphia	1	0	0	0	0	0	0	76	12
Reading	0	0	0	0	0	0	0	1	0
Scranton	0	0	0	0	0	0		1	0
EAST NORTH CENTRAL									
Ohio:									
Cleveland	2	0	0	0	0	0	2	2	0
Indiana:									
Indianapolis	5	0	0	0	0	0	0	0	0
Illinois:									
Chicago	2	0	0	1	0	0	3	2	0
Michigan:									
Detroit	1	0	0	0	0	0	2	0	0
Flint	0	0	0	0	0	0	0	1	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis	0	0	0	0	0	0	0	1	0
St. Paul	0	0	0	0	0	0	0	2	0
Missouri:									
St. Louis	1	0	0	0	0	0	1	0	0
North Dakota:									
Fargo	0	0	0	0	0	0	0	2	1
Nebraska:									
Omaha	0	0	0	0	0	0	0	1	0
SOUTH ATLANTIC [1]									
District of Columbia:									
Washington	0	0	0	0	0	0	0	2	1
West Virginia:									
Huntington	0	0	0	0	0	0		0	1
South Carolina:									
Charleston	0	0	0	0	3	0	0	1	0
Georgia:									
Savannah [1]	0	0	0	0	5	0	0	0	0
EAST SOUTH CENTRAL									
Kentucky:									
Lexington	0	0	0	0	0	1		0	0
Tennessee:									
Memphis	0	0	0	0	1	1	0	1	0
Alabama: [2]									
Birmingham	1	0	0	0	1	2	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans	0	0	0	0	2	1	0	1	0
Shreveport	0	0	0	0	0	1	0	0	0
Oklahoma:									
Muskogee	0	0	0	0	1	0		0	0
Oklahoma City	0	0	0	1	0	0	0	0	0
Texas:									
Dallas	0	0	0	0	1	1	0	0	0
Fort Worth	0	0	0	0	0	3	0	0	0
San Antonio	0	0	0	0	0	1	0	0	0
PACIFIC									
Washington:									
Tacoma	0	0	0	0	0	0	0	1	0
California:									
Los Angeles	0	0	0	0	0	0	1	2	0
San Francisco	1	1	0	0	0	0	1	0	0

[1] Typhus fever: 12 cases and 1 death: 1 case at Norfolk, Va.; 1 death at Huntington, W. Va.; 10 cases at Savannah, Ga.; and 1 case at Tampa, Fla.
[2] Dengue, 1 case at Mobile, Ala.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended August 13, 1932.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases for the week ended August 13, 1932, as shown in the following table. Provinces not given in the table did not report, during the week, any case of any disease included in the table.

Province	Cerebrospinal fever	Poliomyelitis	Typhoid fever	Province	Cerebrospinal fever	Poliomyelitis	Typhoid fever
Prince Edward Island			1	Alberta			8
New Brunswick			6	British Columbia			1
Quebec	1	26	11	Total	2	32	[1] 33
Ontario	1	5	[1] 12				
Saskatchewan		1					

[1] Including 3 cases of paratyphoid fever.

Quebec Province—Communicable diseases—Week ended August 13, 1932.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended August 13, 1932, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	1	Puerperal septicemia	1
Chicken pox	15	Scarlet fever	33
Diphtheria	18	Tuberculosis	34
Erysipelas	5	Typhoid fever	11
Measles	16	Whooping cough	89
Poliomyelitis	26		

CUBA

Habana—Communicable diseases—Four weeks ended August 13, 1932.—During the four weeks ended August 13, 1932, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria	9	2	Scarlet fever	8	
Leprosy	1		Tuberculosis	17	7
Malaria [1]	12	2	Typhoid fever [1]	19	8
Measles	6				

[1] Many of these cases are from the island of Cuba, outside of Habana.

GREAT BRITAIN

Scotland—Vital statistics—Quarter ended June 30, 1932.—The Registrar General of Scotland has published the following statistics for the second quarter of the year 1932:

Population (provisional)	4, 880, 000
Births	24, 250
Birth rate per 1,000 population	20. 0
Deaths	16, 410
Death rate per 1,000 population	13. 5
Marriages	7, 881
Deaths under 1 year	1, 975
Deaths under 1 year per 1,000 births	81
Deaths from—	
Bronchitis	728
Broncho-pneumonia	670
Cancer	1, 783
Cerebrospinal fever	68
Diabetes	163
Diphtheria	71
Dysentery	2
Erysipelas	51
Heart disease	2, 438
Influenza	307
Lethargic encephalitis	17
Measles	294
Nephritis, acute	50
Nephritis, chronic	327
Paratyphoid fever	1
Pneumonia (not specified)	222
Pneumonia, lobar	350
Poliomyelitis	5
Puerperal sepsis	57
Scarlet fever	53
Syphilis	29
Tetanus	3
Tuberculosis	1, 165
Typhoid fever	5
Whooping cough	127

ITALY

Communicable diseases—Four weeks ended February 7, 1932.—During the four weeks ended February 7, 1932, cases of certain communicable diseases were reported in Italy as follows:

Disease	Jan. 11-17 Cases	Jan. 11-17 Communes affected	Jan. 18-24 Cases	Jan. 18-24 Communes affected	Jan. 25-31 Cases	Jan. 25-31 Communes affected	Feb. 1-7 Cases	Feb. 1-7 Communes affected
Anthrax	17	15	23	20	14	13	4	4
Cerebrospinal meningitis	19	15	11	10	16	12	15	13
Chicken pox	359	125	310	107	313	103	275	107
Diphtheria and croup	509	283	510	300	603	313	486	297
Dysentery	3	3	1	1	3	3	2	2
Lethargic encephalitis			4	4	1	1	1	1
Measles	1,512	207	1,781	233	2,012	246	2,053	252
Poliomyelitis	6	6	10	10	6	6	12	9
Scarlet fever	378	127	377	139	343	127	311	148
Typhoid fever	269	165	266	151	246	152	244	147

YUGOSLAVIA

Communicable diseases—July, 1932.—During the month of July, 1932, certain communicable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	85	9	Poliomyelitis	5	
Cerebrospinal meningitis	6	7	Scarlet fever	229	21
Diphtheria and croup	348	22	Sepsis	7	3
Dysentery	96	11	Tetanus	57	26
Erysipelas	148	8	Typhoid fever	185	13
Measles	223	4	Typhus fever	10	
Paratyphoid fever	18				

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of the quarantinable diseases appears in the Public Health Reports for August 26, 1932, pages 1798-1811. A similar cumulative table will appear in the Public Health Reports to be issued September 30, 1932, and thereafter, at least for the time being, in the last issue (published on the last Friday) of each month.)

Cholera

China.—Amoy, week ended August 13, 1932, 97 cases, 40 deaths. Canton, week ended August 27, 1932, 7 cases, 2 deaths. Hankow, week ended August 6, 1932, 156 cases, 24 deaths. Hong Kong, week ended August 27, 1932, 8 cases, 5 deaths. Macao, week ended August 13, 1932, 25 cases, 25 deaths. Nanking, week ended August 13, 1932, 138 cases, 17 deaths. Shanghai, week ended August 13, 1932, 343 cases, 31 deaths. Swatow, week ended July 30, 1932, 56 cases, 3 deaths. Tientsin, two weeks ended August 6, 1932, 9 cases.

Philippine Islands.—A case of cholera was reported July 29, 1932, in the port of Iloilo, Philippine Islands. This case was reported in the Public Health Reports of August 26, 1932, page 1799, as in Iloilo Province.

Plague

Argentina.—One case of plague was reported in San Luis Province, Argentina, during the week ended August 13, 1932.

Hawaii Territory.—A case of plague has been reported at Makawao, Island of Maui, Territory of Hawaii. The onset of the disease occurred August 11, 1932. The patient recovered.

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UNITED STATES TREASURY DEPARTMENT

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of public health.

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CONTENTS

PREVALENCE OF DISEASE

PUBLIC HEALTH REPORTS

VOL. 47 SEPTEMBER 16, 1932 NO. 38

EPIDEMIOLOGY OF THE 1930 POLIOMYELITIS EPIDEMIC IN KANSAS

By Earle G. Brown, M. D., *Secretary, Kansas State Board of Health, Collaborating Epidemiologist, United States Public Health Service*

Acute anterior poliomyelitis, erroneously called infantile paralysis, is an acute infectious disease, oftentimes difficult to differentiate in its early stages from any other of the acute infectious diseases of childhood. Apparently, the disease is increasing in prevalence in all parts of the civilized world. The name infantile paralysis is not only not descriptive but is misleading, for the reason that adults contract the disease and also because paralysis is not at all constant. Few diseases are known which, in so short a time, as is the case with poliomyelitis, may completely destroy a useful life through permanent and hopeless crippling.

Case and death records of poliomyelitis are available for Kansas since the year 1908. In that year 100 cases were reported, with 33 deaths; while in 1916, the year of the widespread epidemic in the United States, 120 cases were reported, with 26 deaths. The high total number of cases, 694, was reported in 1930, as well as the high total number of deaths, 64. The previous high total number of cases, 196, was reported in each of the years 1910 and 1927, in which years 53 and 49 deaths, respectively, were recorded. The lowest case-fatality rate, 9.1 per cent, was recorded in 1930, and the previous low, 21.6, in 1916. Case reports, numbers of deaths, and case-fatality rates are shown in Table 1.

Table 1.—*Poliomyelitis in Kansas*

Year	Cases reported	Deaths reported	Case-fatality rate	Year	Cases reported	Deaths reported	Case-fatality rate
1908	100	33	33.0	1920	26	8	30.7
1909	90	27	30.0	1921	91	33	36.3
1910	196	53	27.0	1922	23	20	86.9
1911	26	8	30.7	1923	149	36	24.1
1912	70	23	32.8	1924	28	12	42.8
1913	16	6	37.5	1925	122	36	29.5
1914	26	13	50.0	1926	66	20	30.3
1915	29	17	58.6	1927	196	49	25.0
1916	120	26	21.6	1928	40	9	22.5
1917	75	17	22.6	1929	26	10	38.4
1918	30	12	40.0	1930	694	64	9.2
1919	60	17	28.3				

A study of case reports of poliomyelitis by months in Kansas for the past 10 years shows only occasional cases for the first 6 months of the year, with a definite increase beginning in early summer. The peak was reached in September in five of the years, in August in four years, and in 1929 six cases were reported in two months—September and October. These data are shown in Table 2.

TABLE 2.—*Poliomyelitis cases reported in Kansas by months, 1921–1930*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1921	2	4	0	1	2	1	3	16	36	20	4	2	91
1922	5	2	0	0	1	1	1	6	4	1	1	1	23
1923	0	2	2	0	0	1	10	74	29	20	9	2	149
1924	3	2	1	3	2	0	1	4	8	2	0	2	28
1925	0	0	2	0	1	2	15	38	35	19	6	4	122
1926	2	1	2	0	1	3	3	13	22	13	3	3	66
1927	2	0	5	2	3	5	17	34	68	45	11	4	196
1928	3	1	4	1	1	0	3	14	9	3	1	0	40
1929	2	0	0	1	0	2	5	4	6	6	0	0	26
1930	2	2	1	0	1	2	39	185	272	161	25	4	694

During the 5-year period, 1926–1930, 1,022 cases of acute anterior poliomyelitis were reported in the State, 603 males and 419 females, males predominating in the reported cases in a ratio of 6 to 4. Seventy-six and eight-tenths per cent of the total reported cases occurred in persons under 15 years of age. Among males, 73.5 per cent of cases were under 15, as compared with 81.7 per cent of females. Of the males, 29.2 per cent occurred in the age group 0–4 and 29.4 per cent in the age group 5–9 years. While 23.2 per cent of the reported cases were over 15 years of age, 38.9 per cent of the deaths were reported in persons over 15. Among males the largest percentage of deaths, 22.3 per cent, for any age group occurred in the age group 5–9 years, while in females the largest percentage, 26.5 per cent, occurred in persons under 5 years of age. Percentage distribution of reported cases and deaths by sex and age groups are shown in Table 3.

TABLE 3.—*Percentage distribution of poliomyelitis cases and deaths by sex and age groups, in Kansas, 1926–1930*

	Age							
	0–4	5–9	10–14	15–19	20–29	30–39	40–49	Over 50
Cases:								
Total	31.5	28.5	16.8	12.2	7.0	1.5	1.5	0.6
Male	29.2	29.4	14.9	14.2	7.9	1.8	1.6	.6
Female	34.9	27.2	19.6	9.3	5.7	1.1	1.4	.5
Deaths:								
Total	21.7	19.7	19.7	13.1	12.5	5.2	4.6	3.2
Male	19.4	22.3	19.4	15.5	12.6	3.8	4.8	1.9
Female	26.5	14.2	20.4	8.1	12.2	8.1	4.0	6.1

THE KANSAS EPIDEMIC OF 1930

There were 694 reported cases of poliomyelitis in Kansas in 1930, with 64 deaths. During the first six months but eight cases were reported, with date of onset and location by counties as follows:

Johnson	Jan. 11
Wyandotte	Jan. 22
Montgomery	Feb. 11
Douglas	Feb. 18
Crawford	Mar. 2
Atchison	May 2
Shawnee	June 12
Greenwood	June 28

During the first six months of the year, therefore, eight cases were reported from eight different counties. In the three weeks' period following June 30, cases were reported from 12 additional counties and from 3 counties which had reported cases during the first six months. In general, the geographical trend of the incidence was from the southwest to the junction of highways US 54 and US 81. A tendency to scatter rather widely east and north followed, until by the end of September, when 272 additional cases had been reported, the great majority of the counties were represented by one or more reported cases. October had 161 cases, and then came a rapid drop to 25 cases in November and to 4 in December.

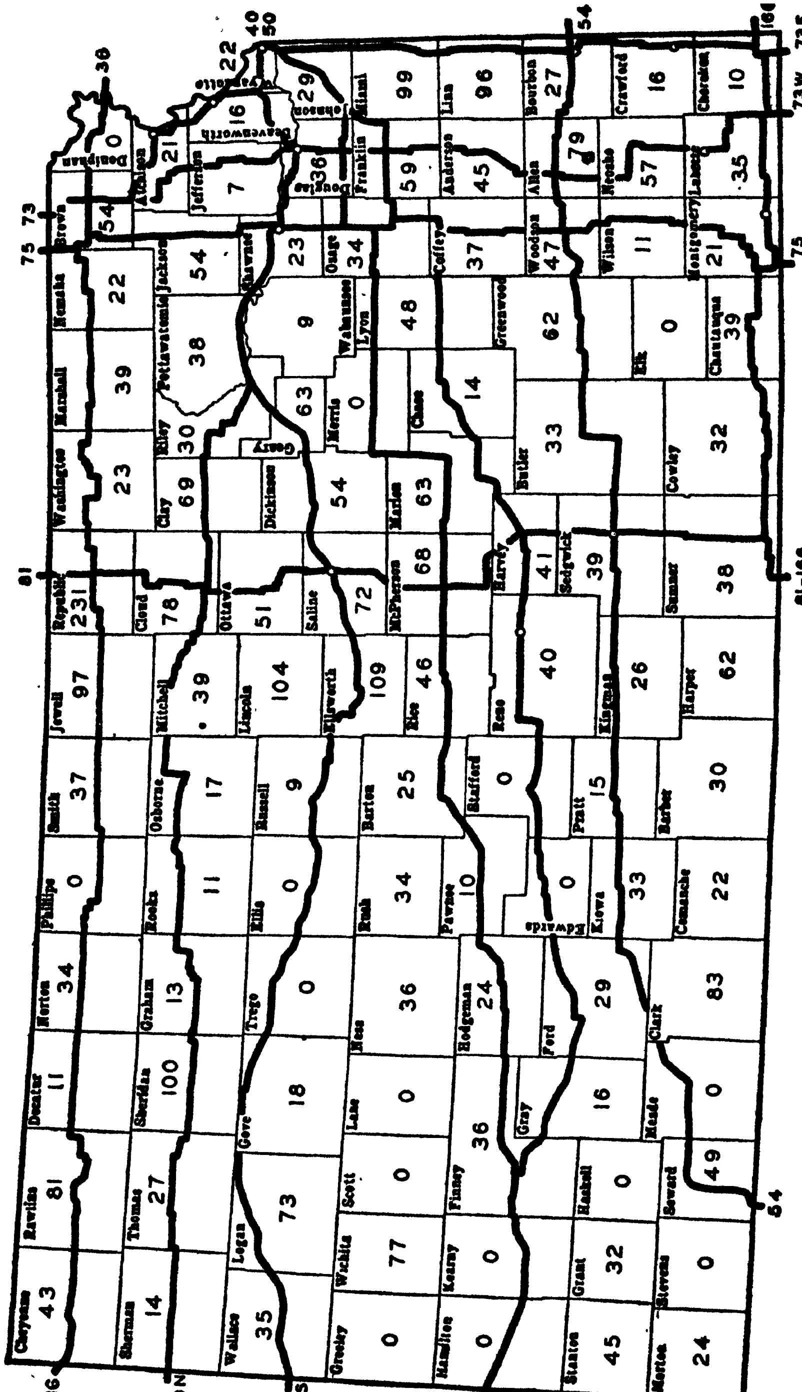
Counties from which no cases were reported included Doniphan, Edwards, Elk, Ellis, Greeley, Hamilton, Haskell, Kearney, Lane, Meade, Morris, Phillips, Scott, Stafford, Stevens, and Trego. Only three of these counties, Doniphan, Elk, and Morris, are in the east half of the State.

In an attempt to secure complete case histories, questionnaires were mailed to each physician who reported cases of poliomyelitis after July 1. Five hundred of the 688 blanks were returned, from which the data we now present are abstracted.

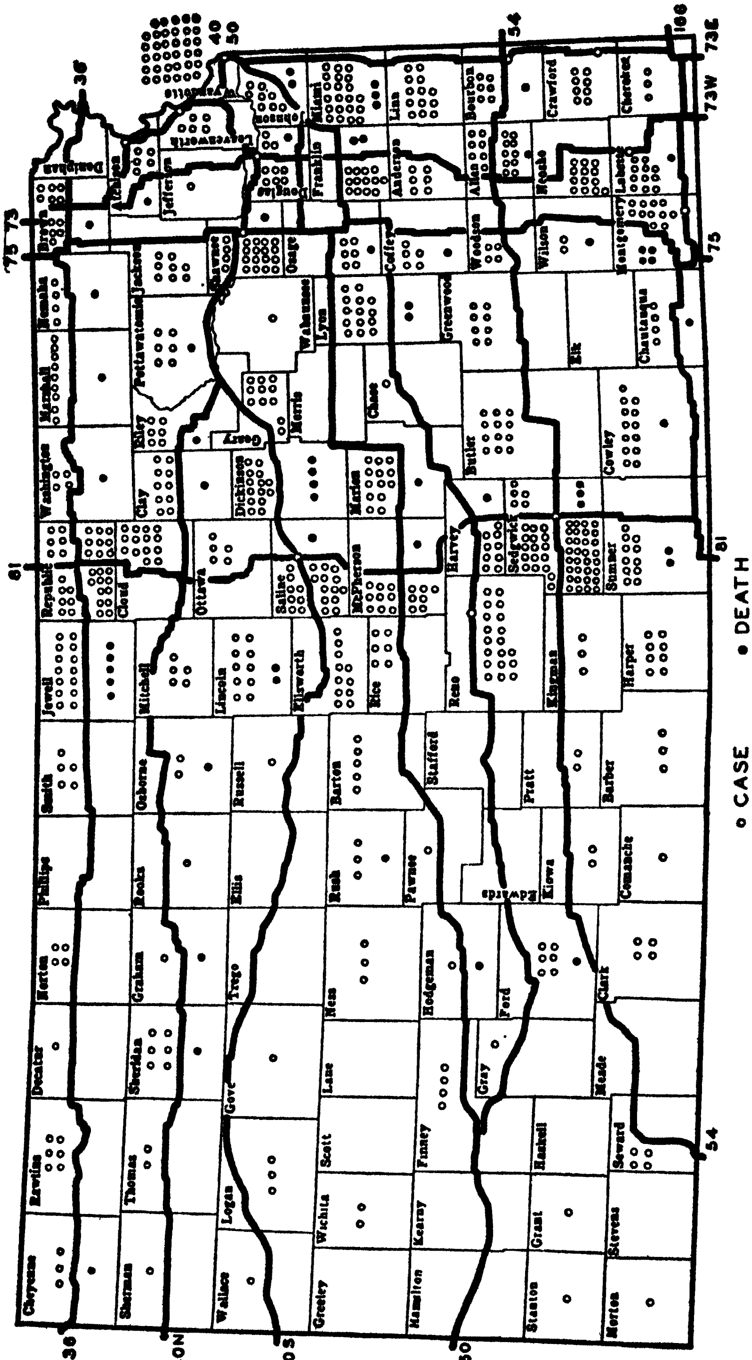
There were 452 cases reported in 433 families with data as to the family composition. In these families there were 1,007 adults and 1,194 children, a total of 2,201 individuals. Records were not secured of the total number of persons comprising the families in 48 cases.

In only 25 cases was report made that there had been a known contact with an acute case. In 12 of these cases, report was made of contact with a member of the family having a definite paralytic case, while the source of contact of the other 13 cases was not given. The source of infection, however, of 11 cases was attributed to exposure in another State, as follows: Missouri, 4; Colorado, 3; Oklahoma, 2; and Nebraska and Wisconsin, 1 each.

Multiple cases were reported in 19 families, with one family having 3 cases. These data are shown in Table 4.



Poliomyelitis case rates per 100,000 population, Kansas, 1930



Poliomyelitis cases and deaths in Kansas, 1930

TABLE 4.—*Multiple cases of poliomyelitis in families, Kansas, 1930*

Case No.	Date of onset	Sex	Age	Paralysis
47	Aug. 14	M	16	Left leg.
48	Aug 8	M	23	Both legs.
67	Sept 26	M	18	Abortive.
68	do	M	21	Both legs.
120	Sept. 24	F	13	Left arm; both legs.
121	Sept. 30	M	7	Left leg.
124	Oct. 7	F	8	Abortive.
125	Oct. 6	F	10	Right leg.
132	Oct. 14	M	24	Both legs.
133	Oct. 15	M	19	Do.
189	Sept. 13	M	8	Left leg.
189a	Sept. 20	F	10	Not stated.
228	Aug. 1	M	8	Chest (died).
229	July 27	F	18	Both arms; both legs.
241	Not given	M	3	Right leg.
241a	Sept. 8	F	------	Not stated.
256	Sept. 20	F	2	Right leg.
257	Sept. 26	F	4	Do.
263	Sept. 27	M	7	Bulbar (died).
264	Sept. 29	F	9	Both arms; both legs.
270	Oct. 18	F	4	Not stated.
271	Oct. 20	M	21	Chest (died).
349	Aug. 26	F	5	Right arm.
350	Aug. 29	M	8	Do.
352	Oct. 22	F	10	Left arm; right leg.
353	Nov. 3	M	11	Left arm.
356	Sept. 16	M	14	Abortive.
357	Sept. 12	F	11	Left leg.
360	Aug. 30	F	13	Both legs.
361	do	M	10	Abortive.
373	July 24	F	6	Right leg.
374	Aug. 1	M	10	Abortive.
411	Sept. 20	F	6	Both legs.
412	Not given	F	8	Not stated
413	July 25	F	3	Both legs.
414	July 22	M	8	Not stated (died).
423	Sept. 26	F	11	Left leg.
424	do	M	5	Both legs.
425	Sept. 19	M	14	Do.

The majority of cases had the services of a physician quite early; he was called before the fourth day after onset in 316, or 67.2 per cent, of 469 cases. These data are shown in Table 5.

TABLE 5.—*Days from onset to visit of physician*

	Number	Per cent		Number	Per cent
Same day	164	34.9	9 days	1	2.3
1 day	94	20.0	10 days	2	
2 days	58	12.3	11 days	0	
3 days	41	8.7	12 days	0	
4 days	34	7.2	13 days	2	
5 days	25	5.3	14 days	3	
6 days	16	3.4	Over 15 days	3	
7 days	18	3.8	Not stated	31	--------
8 days	8	1.7			

According to reports of the attending physicians, 206 of 445 patients, or 46.3 per cent, went to bed on the same day as the occurrence of the onset of the disease. Only five of the patients were not confined to their bed at some stage of their illness. Data showing period of time elapsing from the time of onset until the patient went to bed is shown in Table 6.

TABLE 6.—*Days from onset to going to bed*

	Number	Per cent		Number	Per cent
Same day	206	46.2	6 days	9	2.0
1 day	80	17.9	7 days	7	1.5
2 days	55	12.3	8 days or over	10	3.8
3 days	29	6.5	Not in bed	5	1.1
4 days	25	5.6	Not stated	55	
5 days	19	4.2			

For any one 24-hour period the majority of cases developed their paralysis on the fourth day after onset. Report was made that 41 cases, or 9.2 per cent, did not have paralysis, and, therefore, are classed as being of the abortive type. Occurrence of paralysis after onset is shown in Table 7.

TABLE 7.—*Days from onset to time of paralysis*

	Number	Per cent		Number	Per cent
Same day	65	14.7	6 days	14	3.1
1 day	15	3.3	7 days	17	3.8
2 days	79	17.8	8 days or over	14	3.1
3 days	105	23.7	No paralysis	41	9.2
4 days	63	14.2	Not stated	59	
5 days	28	6.3			

The principal symptoms in order of importance are shown in Table 8.

TABLE 8.—*Occurrence of symptoms*

	Number	Per cent		Number	Per cent
Temperature	437	98.9	Constipation	228	46.9
Headache	372	76.2	Sore throat	180	36.8
Malaise	362	74.3	Sound sensitive	178	36.8
Stiff neck	360	73.9	Pain on swallowing	110	22.6
Nausea and vomiting	323	66.1	Disturbance of vision	100	20.7
Anorexia	322	65.8	Diarrhea	77	15.8

In only 10 cases was report made of the absence of pain during the entire course of the disease. Of the 452 cases reporting on pain, in 154 or 24.0 per cent, the pain was general, while in 111 cases, or 24.5 per cent, pain was present in the neck, back, and legs. The sites of pain are shown in Table 9.

TABLE 9.—*Location of pain*

	Number	Per cent		Number	Per cent
Generalized	154	34.0	Arms (1 right arm)	16	3.5
Neck, back, and legs	111	24.5	Arms and legs	11	2.4
Neck and back	65	14.3	Miscellaneous	17	3.7
Legs (1 right leg, 2 left leg)	35	7.7	Pain absent	10	2.2
Neck, back, and arms	33	7.3	Not stated	48	

The extreme difficulty in recognizing an attack of poliomyelitis without an accompanying paralysis is shown by the total number of paralyzed cases in this series. Without doubt many cases of true poliomyelitis occurred with symptoms so mild, so varied, and so indefinite that the attending physician did not feel justified in making a positive diagnosis. These cases had only a slight indisposition and made a rapid and uneventful recovery. The site of paralysis is shown in Table 10.

TABLE 10.—*Site of paralysis*

	Number	Per cent		Number	Per cent
Legs:			Respiratory, bulbar	47	9.5
Both legs	82	16.7	Throat	7	1.4
Right leg	66	13.4	Both arms, right chest	4	.8
Left leg	76	15.5	Left leg, respiratory	4	.8
Arms:			Both legs, abdomen	2	.4
Both arms	9	1.8	Right arm, right leg, respiratory	2	.4
Right arm	31	6.3	Left arm, left leg, abdominal	2	.4
Left arm	16	3.2	Left leg, abdominal	2	.4
Both arms, both legs	17	3.4	Right arm, respiratory	2	.4
Left arm, left leg	19	3.8	Right foot	1	.2
Right arm, right leg	16	3.2	Right hand	1	.2
Right arm, both legs	10	2.0	Miscellaneous	8	1.6
Left arm, both legs	9	1.8	No paralysis	41	
Right arm, left leg	8	1.6	Not given	10	
Both arms, left leg	5	1.0			
Left arm, right leg	3	.6			

Spinal punctures were reported in 32 cases. Number of cells was not given in 8 cases, but in the remaining 24 the average cell count was 201. The counts ranged from 5 to 1,800. Counts in excess of 100 were reported in 10 of the spinal fluids.

Tonsillectomies were reported as having been performed prior to onset in 76 cases and 13 of these cases had fatal poliomyelitis. In the nonfatal cases, a total of 63, 8 were classed as abortive with complete recovery, while 50 developed paralysis; 5 of them reported as completely recovered.

According to the reports of cases, 138 patients received convalescent serum at some stage of the disease. Information as to the use of serum was not given in six cases.

Of the 138 cases receiving convalescent serum, 13, or 9.4 per cent, resulted fatally, as compared with 51 deaths, or 14.3 per cent, in the group which did not receive serum treatment. However, of the 125 nonfatal cases treated with convalescent serum, it was administered to but 60, or 48.0 per cent, within 48 hours after onset.

Of the 125 nonfatal cases receiving convalescent serum, regardless of the time of its administration, 20, or 16.0 per cent, did not develop paralysis, as compared with but 12, or 3.9 per cent of the 303 nonfatal cases not receiving serum treatment.

Of the 500 cases, 111 were reported as completely recovered.

A STUDY OF TUBERCULOSIS AMONG THE INDIANS IN MONTANA

A Preliminary Report

By J. H. Crouch, M. D., C. P. H., *Director, Division of Communicable Diseases, Montana State Board of Health, Collaborating Epidemiologist, United States Public Health Service*

There are seven Indian reservations in Montana, having a total resident Indian population of 13,230; and these, together with 1,568 scattered Indians, make a total of 14,798 Indians in the State.

It has long been known that tuberculosis is one of the most serious diseases affecting this race, the death rate from which among them being about 15 times as great as it is in the white population, but there had been no systematic study of the disease among Indians in Montana to determine its exact extent or the cause of the high death rate. It has been generally assumed that racial susceptibility is the chief factor, with poor food, bad hygiene, overcrowding, and lack of treatment as contributing causes.

In February, 1931, a general survey of health conditions among school children on one reservation (Fort Peck) was made by the Montana State Board of Health, assisted by voluntary agencies. Both white and Indian children were included in the survey, and special attention was given to tuberculosis. Each child received a skin test, and all those who showed a positive reaction had an X ray of the chest taken and a complete physical examination.

Just prior to the opening of schools in September, 1931, the medical service of the Office of Indian Affairs perfected plans for similar surveys on five other reservations, viz, Fort Belknap, Rocky Boy, Blackfeet, Tongue River, and Crow. The State board of health and the State tuberculosis association assisted in these surveys; the State board of health furnished all laboratory service, and the task of giving the skin tests was assigned to the writer.

The primary purpose of the survey was to determine the extent of tuberculosis among Indian children; but, in addition, it was hoped that specific information might be obtained on two important phases of the subject.

First: Since Indian children are being placed in the public schools in constantly increasing numbers, thus increasing the contact between

white children and a potential source of infection, what effect, if any, does this have in increasing the incidence of tuberculosis among the white children?

When the Indian Medical Service requested assistance in the survey from the State board of health, it was agreed that all white children in schools on or near an Indian reservation, and in which Indian children were found, should be included in the survey.

Second: How important is racial susceptibility as a cause of the high tuberculosis death rate? When considering the causes of the enormous death rate from tuberculosis among Indians, it has been customary in the past to place racial susceptibility at the top of the list, with poor food, poor living conditions, lack of home and personal hygiene, and lack of treatment as contributory causes.

A number of studies have been made in recent years of the question of racial susceptibility to tuberculosis, and the trend of opinion among the investigators seems to be that high death rates among Negroes, Mexicans, and other races are due to poor living conditions and lack of treatment rather than to racial susceptibility.

In the present survey it was hoped that some information on this point might be obtained by keeping a separate record of the mixed bloods for comparison with the full-blood Indians, it being assumed that living conditions were, in general, the same in the two groups. Incidentally, when inquiry was made on this point, the writer was informed by physicians, nurses, reservation officials, and others who constantly visit the Indian homes that there is usually a noticeable difference in living conditions between mixed bloods and full-bloods. It was stated that the mixed bloods are more intelligent; they have better food; living conditions in their homes are better; their habits of personal hygiene are better; when sick, they consult a physician earlier, and his instructions are followed more intelligently. The writer doubts that there is enough difference in living conditions to account entirely for the difference in findings which are mentioned later, but the fact that there is a difference lessens the value of the findings.

Since the reservation rolls carry three degrees of Indian blood—full-bloods, mixed bloods one-quarter or more Indian, and mixed bloods less than one-quarter Indian—these classifications were observed in the survey.

TUBERCULOSIS DEATHS

As a preliminary to the survey, a study was made of tuberculosis deaths among Indians on the six reservations during the five-year period 1926–1930, with a similar study of deaths among the white population of the six counties in which the reservations are located.

The Indians on the six reservations were found to have a crude death rate of 25.9 per thousand, and 34 per cent of the total deaths among them were due to tuberculosis. The white death rate in the six counties was 5.9, and 4 per cent of the total deaths were due to tuberculosis.

TABLE 1.—*Tuberculosis deaths among Indians, 1926–1930, on six reservations in Montana, and in the white population of the six counties in which the reservations are located*

Reservation	Full-blood Indian		Mixed blood ¼ and more Indian		Mixed blood less than ¼ Indian		White (in county)	
	Population	Deaths	Population	Deaths	Population	Deaths	Population	Deaths
Blackfeet	1,154	74	1,788	16	283		2,466	8
Rocky Boy	252	5	343	7			6,804	7
Fort Belknap	590	71	663	15	30		7,630	8
Fort Peck	1,077	72	1,288	33	265	1	8,646	11
Crow	977	45	700	7	68		6,119	4
Tongue River	1,148	78	231	7	119	1	6,370	7
Total	5,198	345	5,013	85	765	2	38,035	45
Annual death rate per 100,000	1,327.4		339.1		52.3		23.7	

In Table 1 are listed for each reservation the total deaths from tuberculosis in full-blood Indians, mixed bloods one-quarter or more Indian, mixed bloods less than one-quarter Indian, and in the white population of the adjoining county. The population figures for the Indians are taken from the reservation census of April 1, 1931, and those for the whites from the Federal census of 1930. It will be noted immediately that the death rate is enormously high among the full-blood Indians and steadily decreases with the admixture of white blood.

If the rates were calculated for each reservation, a wide difference would be noted; but the separate population groups are so small that the figures are of doubtful significance. Among the full-blood Indians living conditions seemed to be somewhat better than the average on the Crow and Rocky Boy Reservations, and the tuberculosis death rates were below the average. Living conditions were very poor on the Tongue River Reservation, and the tuberculosis death rate there was above the average. No explanation can be suggested for the extremely high rate on the Fort Belknap Reservation. Living conditions seemed to be average, and the infection rate, as will be shown later, was not unusually high. Among the mixed bloods the death rate on the Blackfeet Reservation was only one-half as high as the average for this group. It was on this reservation especially that there was a noticeable difference in living conditions between mixed bloods and full bloods. Among the white population

the only difference in rate which seemed to be significant was that in Glacier County. The Blackfeet Reservation is located here, and it is the only county of the State in which there are more Indians than whites. The tuberculosis death rate among white people in Glacier County is three times as high as in any other county.

TABLE 2.—*Tuberculosis deaths among Indians, 1926–1930, on six reservations in Montana, by age and degree of Indian blood; also in the white population of the six counties in which the reservations are located*

Race	Age group																Total
	Under 1	1–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70 and over	
Full-blood Indian	11	46	28	32	47	28	31	16	13	14	9	14	14	11	10	21	345
Mixed blood ¼ and more Indian	8	18	7	9	8	13	5	4	4	4	1	2	2				85
Mixed blood less than ¼ Indian					1	1											2
White, six counties				1	5	1	6	5	2	3	5	6	5	2		4	45

In Table 2 the deaths are given by age. The age distribution is very unusual in all groups. In the full-blood Indians one-third of the deaths were in persons under 15 years of age, one-third in persons between 15 and 30 years, and one-third in individuals over 30 years. The large number of deaths in children would seem to indicate gross negligence on the part of open cases in the family, and this is probably one of the most important causes. In this age group we would expect to find intestinal and meningeal types of the disease predominating, but the certificates show that 73 of the 117 deaths were from pulmonary tuberculosis. Every age was represented in the pulmonary cases, as follows: Under 1 year, 5 cases; 1 to 4 years, 24 cases; 5 to 9 years, 21 cases; and 10 to 14 years, 23 cases.

At age 30 there is a sudden drop of 50 per cent in the number of deaths. In the older age groups the number of deaths continues without decrease. The death certificates give very little information about the duration of the disease. If the deaths at older ages were due to prolonged courses of the disease, thus indicating increased resistance, there would still be a gradual decline in number as age advanced. It seems more reasonable to interpret the figures as probably indicating the onset of active tuberculosis at more advanced ages than usually occurs in the white race. Gross infection continues, of course. If we concede that resistance increases with advancing years, this seems to be effective suddenly at the age of 30 years. From then onward, however, there must be little further increase in resistance.

The total number of mixed bloods one-quarter or more Indian included in the study is about equal to the number of full-blood

Indians, being a little over 5,000. They live on the same reservations, in the same general surroundings. Since Indians are incessant visitors, there is very little difference in the amount of exposure. It is said that there is some difference in the living conditions, but this difference is not great enough to be obvious to the casual visitor. In spite of these points of similarity, the mixed bloods have only one-fourth as many deaths from tuberculosis, the exact ratio being 1 to 4.1. The ratio varies widely at different ages; under 15 years it is 1 to 2.8; from 15 to 30 years it is 1 to 4.1; and over 30 years 1 to 7.2. Whatever the factors may be which cause marked reduction in deaths from tuberculosis among the mixed bloods, they are least effective in childhood, and steadily increase in effectiveness as age advances. No deaths from tuberculosis occurred after 60 years.

Among the whites the tuberculosis death rate is extremely low, and the age at death in tuberculosis cases is higher than the average.

MANTOUX TESTS

The first step in the survey of tuberculosis among school children was a skin test of each child for tuberculous infection. The test was given to all Indian children without asking for consent of the parents. With white children, consent of the parents had to be obtained. For this reason, the number of white children included in the survey varied from 50 to 90 per cent of these children in the various localities.

The test used was the intradermal test of Mantoux. The volume of the work made it impractical to give the three tests with increasing strength of solutions. For this reason, only one test was given to each child, and Mantoux's solution B was used, which consists of a 1:1,000 dilution of old tuberculin with the dose 0.1 cc. Thus each child received intradermally 0.1 mg of concentrated old tuberculin. The tests were all given and readings made by the author so as to have the results as nearly uniform as possible. Readings were made in 48 hours in nearly all instances. In a few schools, having a total of about 200 children, readings were after a 72-hour interval.

The readings were recorded strictly according to the Mantoux scale, with one exception. While some tuberculosis authorities recommend that an area of induration less than 5 mm in diameter should be ignored, in the present survey all perceptible reactions were considered positive. Indurations less than 1 cm in diameter were classified as 1+. Many of the reactions so recorded, especially among white children, were not more than 3 or 4 mm in diameter. In the entire survey there were not more than fifteen or twenty 4+ reactions; and for convenience in tabulation these are included with the 3+ group. In Table 3 are given the results of the test on each reservation. Table 4 is a summary of all the children tested, arranged according to degree of Indian blood and age, with degree of reaction and per cent of positives in each group.

TABLE 3.—*Mantoux tests of school children on six Indian reservations in Montana*

Reservation	Full-blood Indian			Mixed blood ¼ and more Indian			Mixed blood less than ¼ Indian			White		
	Number tested	Positive	Per cent	Number tested	Positive	Per cent	Number tested	Positive	Per cent	Number tested	Positive	Per cent
Blackfeet	142	98	69.8	338	177	52.4	55	25	45.5	102	53	52.0
Rocky Boy	34	21	61.8	47	28	59.6				1	1	100.0
Fort Belknap	93	59	63.4	256	143	55.9	9	3	33.3	328	58	17.7
Fort Peck	155	123	79.4	273	128	46.9	29	12	41.4	503	86	17.1
Crow	146	107	73.3	137	88	64.2	31	8	25.8	465	116	24.9
Tongue River	227	190	83.9	55	37	67.3	16	7	43.8	11	4	36.4
Total	797	598	75.0	1,106	601	54.3	140	55	39.3	1,410	318	22.6

Among the white children it was noted that the percentage of positive reactors varied considerably on the different reservations. The variation was even more noticeable in different localities on the same reservation. The lowest percentage of positive reactions among white children was found in several larger towns, where the positives were from 12 to 17 per cent. In the small villages and in some of the rural schools, positive reactions were obtained in from 20 to 35 per cent of the white children. The highest percentage of reactors among white children was found at Browning, where 50 positive reactions were seen among the 96 children tested. The percentage of positive reactions among white children seemed to be correlated somewhat with the percentage of Indian children in the school, but, in addition, contact outside of school and contact with Indian adults are possible factors. In the towns having a low percentage of positives among white children it was learned that practically no Indian families live in the town itself; they live in the surrounding country, and the Indian children are brought to the school in busses. Indian adults visit the towns on business, but contact with the white children is slight. In the smaller villages and rural areas, contact between white children and Indian families is closer, as a number of Indian families live in the villages. There is some visiting in the homes, and casual contact on the streets and in the stores and other public places is greater.

The town of Browning differed from other communities in that its population is about two-thirds Indian. There are 207 Indians and about 100 whites in the public school. In this town there is necessarily rather constant contact between Indian adults and white children.

A total of 1,410 white children were tested, and 22.6 per cent of them were positive. The vast majority of the reactions among white children were slight. Only a little over 3 per cent of the total white children tested gave a reaction greater than 1+, and, as previously stated, many of the reactions recorded as 1+ were less than 5 mm in diameter.

The age distribution and degree of reaction are given in Table 4.

TABLE 4.—*Mantoux tests of school children on six Indian Reservations in Montana (Fort Peck, Fort Belknap, Rocky Boy, Blackfeet, Tongue River, and Crow), October, 1931*

Age	.. Full-blood Indian						Mixed blood ¼ or more Indian					
	Total examined	Negative	Positive: Total	Degree 1+	Degree 2+	Degree 3+	Total examined	Negative	Positive: Total	Degree 1+	Degree 2+	Degree 3+
3	1	1										
4	2	1	1	1			3	1	2	2		
5	7	3	4	1	2	1	17	14	3	2	1	
6	58	21	37	16	19	2	88	47	41	26	13	2
7	65	25	40	13	17	10	99	57	42	26	12	4
8	79	30	49	22	19	8	107	52	55	25	20	10
9	81	21	60	20	23	17	133	68	65	33	24	8
10	106	31	75	18	33	24	120	58	62	32	17	13
11	77	17	60	18	21	21	120	50	70	28	25	17
12	68	11	57	17	17	23	111	52	59	22	21	16
13	71	10	61	17	22	22	90	32	58	19	22	17
14	62	11	51	18	22	11	74	26	48	22	18	8
15	58	10	48	11	27	10	59	19	40	21	6	13
16	35	5	30	14	8	8	36	12	24	15	7	2
17	17	2	15	4	4	7	25	6	19	7	6	6
18	6	0	6	2	1	3	11	5	6		4	2
19	2	0	2	1		1	9	3	6	1	3	2
20	2	0	2	1	1		4	3	1		1	
Total	797	199	598	194	236	168	1,106	505	601	281	200	120
Per cent positive			75.0						54.3			

Age	Mixed blood less than ¼ Indian						White					
	Total examined	Negative	Positive: Total	Degree 1+	Degree 2+	Degree 3+	Total examined	Negative	Positive: Total	Degree 1+	Degree 2+	Degree 3+
3							2	1	1	1		
4							5	4	1	1		
5	1		1	1			10	9	1	1		
6	10	7	3	3			114	92	22	21		1
7	16	11	5	3	1	1	96	77	19	16	2	1
8	15	7	8	6	2		105	79	26	24	1	1
9	16	6	10	7	3		115	100	15	11	4	
10	13	9	4	1	1	2	132	97	35	32	2	1
11	20	15	5	3	1	1	140	106	34	30	3	1
12	15	11	4	3		1	121	92	29	24	4	1
13	8	6	2	2			120	98	22	17	4	1
14	10	5	5	5			119	92	27	24	1	2
15	5	3	2	2			111	83	28	24	4	
16	6	4	2		1	1	97	74	23	18	3	2
17	2	1	1		1		73	52	21	17	4	
18	3	0	3	2	1		32	24	8	4	4	
19							12	8	4	3	1	
20							6	4	2	2		
Total	140	85	55	38	11	6	1,410	1,092	318	270	37	11
Per cent positive			39.3						22.6			

Among the white children, there was a slight but steady increase in the percentage of positive reactions with the increase in age.

In the record of the tests of the Indian children several points are very noticeable: The percentage of positive reactions steadily increases with the degree of Indian blood, the increase each year in the

percentage of positives is much greater than in white children, and the reactions are more severe. The number tested in the group having less than one-quarter of Indian blood was rather small; only 140 children belonged in this group, and 39.3 per cent were positive. In this group it will be noted also that, as in the white children, most of the reactions were recorded as 1+. In the mixed bloods having one-quarter or more Indian blood, 1,106 children were tested, and 54.3 per cent were positive. Twenty-nine per cent of this group gave a reaction greater than 1+. In the full-blood Indians 797 were tested and 75 per cent showed a positive reaction. Fifty per cent of all the children in the full-blood group gave a reaction greater than 1+.[1] When comparing full-blood Indians with Indians of mixed blood, it was previously stated that there was probably little difference in the amount of infection in the two groups; but the evidence produced by the Mantoux tests opposes this. The percentage of positives is definitely higher in the full bloods and the excess is noted at all ages. The question naturally arises, Is this increase in infection rate sufficient in itself to cause a death rate four times as high? It seems doubtful.

Another interesting point is that after age 17 the mixed bloods show a decided drop in positive skin tests, while the full bloods jump to 100 per cent positive. The number tested is much too small to be of definite significance. It is undoubtedly true that in many infected children the initial lesion is so completely healed that a skin test at a later period will be negative. It is possible that complete healing is less frequent in full-blood Indians.

ETIOLOGY OF TRACHOMA WITH REFERENCE TO RELATIONSHIP OF *Bacterium granulosis* (NOGUCHI) TO THE DISEASE

By Ida A. Bengtson, *Senior Bacteriologist, National Institute of Health, United States Public Health Service*

Since the announcement by Noguchi (1), in May 1927, of the discovery of a new micro-organism isolated from four of five cases of trachoma among American Indians studied at Albuquerque, N. Mex., and designated by him as *Bacterium granulosis*, many attempts

[1] Incomplete records of the X rays and physical examinations show that by far the greatest number of cases having chest pathology are to be classed as "childhood type arrested." In this group of children, all showing practically identical physical findings; that is, with calcified hilum glands, possibly a calcified primary focus, and no activity, there was marked variation in the severity of the skin reaction. The variation in severity is definitely correlated with degree of Indian blood. Eighty-five per cent of the white children had a reaction of 1 plus, and only 15 per cent greater than 1 plus. The mixed bloods were 50 per cent 1 plus and 50 per cent greater. The full-blood Indian children were 25 per cent 1 plus and 75 per cent greater than 1 plus.

Severity of reaction does not seem to coincide with degree of activity. Thirty-seven Indian children were found to have the adult type of the disease with definite activity, and 14 of them, or 40 per cent, had a skin reaction of only 1 plus.

have been made to confirm his findings in various parts of the world. Full details of the methods used for the isolation of the organism were published in August, 1928 (2), and cultures of the organism were made available for distribution by the Rockefeller Institute for Medical Research in April, 1929. Up to that time it was difficult for one studying the disease to identify with certainty any organism isolated with Noguchi's. Though having rather distinctive characteristics which are observable when the culture is at hand, *Bact. granulosis* may easily be confused with other small gram-negative rods which occur on the human conjunctiva from time to time. There was a temporary confusion in regard to its identity for some time after the publication of Noguchi's work, owing to the fact that it was stated that the organism would not develop on ordinary agar, but required the presence of serum or blood for growth. As is well recognized at the present time, the organism grows readily and fairly luxuriantly on plain agar, particularly when freshly prepared and moist.

Confirmation of Noguchi's work has come principally from Finnoff and Thygeson (3), of Denver, Colo., and from workers of the Rockefeller Institute for Medical Research, Tilden and Tyler (4), and Olitsky, Knutti, and Tyler (5), and probably from certain European workers. Many others have failed to isolate the organism from cases of trachoma. The ease with which the organism may be cultivated when once isolated contrasts with the apparent great difficulty of obtaining primary growth or of failure to isolate it at all. It is possible that the organisms are present in the conjunctiva in small numbers or that there are other factors concerned which are not readily discernible which may account for the negative results of a number of workers.

The question has been raised as to whether the organisms isolated in the Old World correspond exactly with *Bact. granulosis*. Up to the present time no comparative cultural study of the various organisms isolated has been reported.

In a critical review of the literature it has been noted that very few workers have given adequate descriptions of their organisms, nor have they employed serological tests such as ordinarily used in the identification of unknown bacteria. An immune serum against *Bact. granulosis* may be prepared without great difficulty by intravenous injections of cultures into rabbits, as shown by Tilden (6). Tilden obtained serums of high titer which were specific, agglutinating 14 strains of *Bact. granulosis* and failing to agglutinate the commonly occurring conjunctival bacteria as well as numerous gram-negative bacteria found on the conjunctiva of man and monkeys. Reports of the isolation of cultures of *Bact. granulosis* in which there is no evidence

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that cultures of known organisms were at hand for comparison or in which serological tests are not included may be viewed with some degree of doubt. A number of workers have used the criterion of the production of a granular condition in the conjunctiva of monkeys to identify the organism which they isolated with that of Noguchi's; but identification on this basis is uncertain, owing to the lack of uniformity in results obtained when known cultures of *Bact. granulosis* are used for inoculating the animals, as will be discussed later.

Information concerning the isolation of *Bact. granulosis* or similar organisms is presented in the accompanying table (Table 1), an approximately chronological arrangement being used. In the table are included the name of the investigator, the locality in which the trachoma cases were obtained, the number of cases investigated, the number of cases from which *Bact. granulosis* or a similar organism was isolated, and an evaluation of the results as indicated by the plus and minus signs.

TABLE 1.—*Results obtained by various investigators in attempts to isolate* Bact. granulosis

Investigator and date of publication	Locality	Number of cases investigated	Number of cases from which *Bact. granulosis* or similar organism was isolated	Evidence of isolation of *Bact. granulosis*
Noguchi, 1927, 1928 (2)	New Mexico	5	4	++
Stepanowa & Asarowa, 1929 (7)	Russia (Ukraine)	10	7	+
Finnoff & Thygeson, 1929, 1931 (3)	Colorado, Arizona	29	8	++
Bordonaro, 1929 (8)	Italy	3	2	+
Sabata, 1929 (9)	Czechoslovakia	([a])	0	–
Brückner, 1929 (10)	do	12	0	–
Addario, 1929–30 (11)	Italy	([a])	([a])	++ (1 cult.) [b]
Mayou (referring to work of McCartney), 1929 (12).	England	Many.	0	–
Giani, 1929 (13)	Italy	([a])	1	±
Wilson, 1930 (14)	Egypt	25	0	–
Tilden & Tyler, 1930 (4)	Arizona	20	6	++
Lindner & Rieger, 1930 (15)	Austria	[c] 4	2	±
Bietti, 1930 (16)	Italy	16	2	+
Morax, 1930 (17)	France	11	0	–
Kendall & Gifford, 1930 (18)	Illinois	([a])	1	+
Tang, 1930 (19)	China	24	1	±
Weiss	Missouri	([a])	[d] 1	++
Melanowsky-Lawrynowitsch, 1930 (21)	Poland	95	0	–
Olitsky, Knutti & Tyler, 1930, 1931 (5)	New York	11	6	++
Morax, 1931 (22)	Algeria	([a])	0	–
Lumbroso and Van Sant, 1931 (23)	Tunisia	29	0	–
Reimann & Pillat, 1931 (24)	China	5	1	±
Cattaneo, 1931 (25)	Sardinia	15	0	–
Wilson, 1931 (26)	Egypt	16	0	–
Thygeson, 1931 (27)	do	[e] 16	0	–
Fischer-Ascher, 1931 (28)	Czechoslovakia	60	11	+

(++ indicates unquestionably positive results; + results reported positive, but descriptions not complete; ± doubtful results; – negative results.)

[a] Not stated.
[b] This culture was furnished to the writer through the courtesy of the Rockefeller Institute.
[c] Cases of folliculosis.
[d] This culture was received from Doctor Weiss.
[e] Same cases as preceding.

With reference to the last column in the table, unquestionably positive results in respect to the isolation of *Bact. granulosis* are indicated by the double plus sign (+ +). These cultures have been adequately described or have been compared with Noguchi's organism or have been received and identified by the writer. Results which have been reported positive but in which the description is not entirely complete are designated by the one plus sign (+), and results which are still more doubtful by the plus-minus sign (±). The designation of the second group by + instead of + + should not necessarily be considered a final evaluation of the results reported. Some of the cultures referred to may in the final analysis be found to correspond to *Bact. granulosis*; but at the present time, for the reasons stated, the identity of these cultures can not be considered as absolutely certain.

The data presented in the table will be discussed in their geographical relationship.

UNITED STATES

The work of Finnoff and Thygeson (3) furnishes perhaps the most satisfactory confirmation of the results obtained by Noguchi. Their cases were taken partly from Indians living in the same section of the country as those used by Noguchi and partly from clinical cases seen in their private practice and at the opthalmologic clinic of the University of Colorado School of Medicine. Twelve of their cases were white persons, 1 was a Mexican, 2 were Japanese, and 14 were Indians. From these cases eight cultures of *Bact. granulosis* were isolated, conforming with two cultures of Noguchi's organism with which theirs were compared, except for slight variations of some of the fermentation reactions of some of the cultures.

Tilden and Tyler (4) studied 7 cases of trachoma at Fort Defiance, Ariz., in 1929, isolating the organism from 2 untreated cases and failing to isolate it from 5 treated cases. They studied 13 cases at the Leupp Indian School in September, 1929, and the organism was isolated from 4 which had not received recent treatment. They obtained negative results with treated cases at Santa Fe and Albuquerque, no advanced untreated cases being available for cultural study. The 13 cases at the Leupp Indian School were studied at the same time by Thygeson. It is interesting that the 2 cases from which Thygeson isolated his cultures corresponded with 2 of the 4 cases from which Tilden and Tyler isolated their cultures, indicating that slight differences in the preparation of culture media and in individual technique do not necessarily account for the success of certain workers and the failure of others to isolate the organism.

Olitsky, Knutti, and Tyler (5) studied 9 cases of trachoma in alien and American whites in New York City in 1931, the material used consisting of the "affected conjunctiva, removed for curative

purposes." This was ground in a mortar with sterile saline and was used for cultures and direct inoculation of monkeys. By this method *Bact. granulosis* was isolated from 4 of the cases. The organism was also recovered in cultures from 2 other patients, whose tissues were not used in the transmission experiments.

Weiss (20) refers to a culture of *Bact. granulosis* isolated in his laboratory at Washington University, St. Louis, without details as to source or description of cases studied. This culture as received from Doctor Weiss has been found to correspond with Noguchi's organism.

In a discussion of "trachoma and avitaminosis," Kendall and Gifford (18) refer to a culture isolated by them which they used for experimental work on avitaminosis. This culture as received by me from Kendall and Gifford was found to differ in its cultural and serological aspects from Noguchi's cultures of *Bact. granulosis*, though other writers state that it corresponds with Noguchi's organism.

BACTERIOLOGICAL STUDIES OF TRACHOMA BY THE UNITED STATES PUBLIC HEALTH SERVICE

An extended investigation of the bacteriological aspects of trachoma has been carried on by the writer for a number of years at Rolla, Mo., at the trachoma hospital maintained in that locality by the United States Public Health Service. The cases treated at this hospital are drawn principally from the Ozark region of Missouri and to some extent from Arkansas. In this section, trachoma presents the typical picture of the disease, many of the older cases showing the usual sequelæ of scar tissue, deformed tarsi, with entropion, trichiasis, and corneal opacity; and blindness occurs in a comparatively high percentage. Recent figures (29) indicate that the "virulence index" of the disease (computed by taking the number of eyes blind from trachoma seen during the year and dividing it by the number of new cases of trachoma) is considerably higher in Missouri than in Kentucky or Georgia, the index at the trachoma hospital in Rolla being 0.074, at Richmond, Ky., 0.028, and in Bainbridge, Ga., 0.0027.

Though the problem had been under investigation prior to Noguchi's announcement of the isolation of *Bact. granulosis* from Indian trachoma patients, the results did not warrant drawing definite conclusions. Noguchi having produced a granular condition in monkeys simulating human trachoma with his culture, work along the line followed by Noguchi offered the most promising field of investigation, and efforts were therefore directed toward a confirmation of his results.

Material from suitable cases of trachoma as they came into the hospital was made use of and the technique of Noguchi was followed as closely as possible in attempting to isolate an organism corresponding to *Bact. granulosis*. The results have been negative in all cases

studied, referring in particular to those cases which have been studied since 1929, when cultures of *Bact. granulosis* for comparison were made available by the Rockefeller Institute. From this time until July, 1931, 73 cases were studied.[1] Whether failure to isolate the organism was due to failure to collect suitable material for study, to unsuitability of culture media, or to scarcity or absence of the organism is not known. Some cases were also investigated at the trachoma hospital in Richmond, Ky., and in the spring of 1931, a study was made of Georgia trachoma.

Various plans were used for the collection of material. The plan which seemed most feasible and which was finally adopted as a routine method was that of collecting the follicular contents, by means of Noyes forceps, after the subconjunctival injection of novocain as an anesthetic. The material was suspended in about 1.5 c c of 0.5 per cent of NaCl solution and then planted in the Noguchi Leptospira medium and on horse blood agar plates,[2] using the original material as well as dilutions of the same for this purpose. In some cases the method of excising a small amount of conjunctival tissue was employed. The material was ground in a mortar with sterile 0.5 per cent NaCl solution and used for planting the culture media in the same manner as in the case of the follicular contents. It is indicated in some of the work recently reported that material removed in tarsectomy operations has yielded positive results. Possibly the extensive removal of tissue as is done in this operation is more likely to lead to the isolation of *Bact. granulosis* than when smaller amounts of material are used.

The Leptospira medium and the horse blood agar medium were always found to be suitable for growing known cultures of *Bact. granulosis*. During the course of the work several months were devoted at one time to a special study of culture media, some being prepared according to Noguchi's methods and others with certain slight modifications of those methods. For instance, it was found that one particular peptone was more suitable than others, that better growth could be obtained if the Leptospira medium were made with Ringer's solution or broth than with salt solution. Horse serum was decidedly superior both to the rabbit serum called for in Noguchi's formula for Leptospira medium and to human serum. Variations in the H-ion concentration of the media, the effect of increased moisture, and variations in the temperature of incubation

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[1] Diagnoses in all cases were made by medical officers of the trachoma prevention work of the United States Public Health Service. (See Acknowledgements.)

[2] The Leptospira medium consists of 8 parts of NaCl solution, 1 part of fresh rabbit serum, 1 part of 2 per cent agar, and 0.1 part of laked rabbit erythrocytes.

The blood agar used for plates consists of hormone agar to which is added 20 per cent of horse blood and a mixture of dextrose, maltose, saccharose, galactose, inulin, and dextrin to give a final concentration of 1 per cent of each carbohydrate.

were studied with a view to improving conditions for the isolation of the organism. However, no modification was of any avail, as the results remained negative. Quite recently the effect of partial CO_2 tension was tested, but it was found that there was less growth in an atmosphere containing 5 per cent CO_2 and much less in one containing 10 per cent CO_2 than in ordinary atmosphere.

As to the organisms isolated, in addition to the usual staphylococci and *C. xerosis* or other gram-positive diphtheroids, a number of miscellaneous organisms have been isolated from time to time. Among these are included several species of gram-negative rods to which special attention has always been paid. It may be stated that, with the exceptions to be noted, none have occurred consistently enough, or frequently enough, to warrant serious consideration. At one time, covering a period of seven or eight months, there were found three or four nonhemoglobinophilic gram-negative rods in nearly all of the cases studied, which it seemed might be of significance. Later it was not possible to isolate any of these, and it is a question just what was their source. It is possible that they may have been concerned in an intercurrent epidemic occurring in the hospital during the time under consideration and that they were carried from patient to patient. In the recent study of trachoma in Georgia, two small gram-negative, nonhemoglobinophilic rods were found very consistently, i. e., in 8 and 9 out of a series of 10 cases studied. The relationship of these to the disease as it occurs in Georgia is still under consideration. One of these organisms corresponded very closely in many respects with *Bact. granulosis* and could easily have been confused with it had not cultures of the latter been available for comparison and had not agglutination tests with *Bact. granulosis* immune serum shown that it was a different organism. Fermentation tests were identical, with the exception that rhamnose was fermented by *Bact. granulosis*, while the organism in question did not ferment this carbohydrate.

Pneumococci and streptococci were isolated only occasionally in trachoma in Missouri, but frequently in Georgia. A gram-negative rod of peculiar morphology and producing a rose-colored pigment has been encountered at various times, though not occurring frequently nor in large numbers. It is easily recognizable on account of its distinctive morphology and pigment and has been seen in trachoma in both Missouri and Georgia.

The bacterial flora of the 22 cases of trachoma studied in Georgia was markedly different from that in Missouri. While case after case in Missouri often yielded only the gram-positive diphtheroids and some staphylococci, a very much more diversified flora was found in the Georgia cases, which included streptococci, pneumococci, Morax-Axenfeld bacilli, and hemoglobinophilic and influenza-like organisms,

in addition to the nonhemoglobinophilic gram-negative rods referred to. It may be emphasized that hemoglobinophilic organisms were rarely encountered in Missouri and appear to have no part in the disease in that section of the country.

In Georgia there occurs in the summer months outbreaks of an affection described as "gnat sore eyes," in which a small black gnat appears to be concerned as a vector in transmitting the condition. This offers a probable explanation of the much more diversified flora seen in that section. This variability does not aggravate the trachomatous condition, but, on the other hand, seems to modify it for the trachoma found in Georgia is much milder than the Missouri type. Considering the severity of the disease in Missouri and the apparent absence of complicating factors, this locality would appear to be the most suitable for etiological studies. As indicated by a few of the cases studied at the Richmond hospital, the bacterial flora of the Kentucky type of the disease is quite similar to that encountered in Missouri.

The persistence and large numbers of *C. xerosis* and gram-positive diphtheroids in many Missouri cases of trachoma is of interest. A comparative study was undertaken to determine whether these organisms were more numerous in trachomatous than in normal eyes. In general it may be stated that such was found to be the case, though occasionally these organisms occur in rather large numbers on the normal conjunctiva. As a rule staphylococci were present but not in large enough numbers to interfere seriously with the isolation of other organisms. In a few cases in which an acute condition existed, staphylococci were sufficiently numerous to suggest that they might be concerned as a complicating factor in bringing about the acute condition.

NORTHERN AFRICA

Egypt.—Studies carried on at the Giza Memorial Ophthalmic Laboratory by Wilson (14) (26) since 1928 have failed to reveal the presence of *Bact. granulosis* in Egyptian trachoma. In the fourth annual report of the Ophthalmic Laboratory for 1929 it is reported that negative results were obtained in 25 cases studied, and again in 1931 Wilson reported that negative results were obtained in 16 cases. These same 16 cases were studied by Thygeson, whose results were also negative. Thygeson (27) states that by using the same technique he was able to isolate the organism from cases in Denver, Colo., on his return to this country. He does not, however, interpret his failure to isolate the organism to mean necessarily that it is not there.

Tunis.—Lumbroso and Van Sant (23) state that they failed to isolate *Bact. granulosis* from any of the 29 cases which they studied in

Tunis during a period of two years. In addition to the usual staphylococci and *C. xerosis* they obtained certain gram-negative cocco-bacilli, small gram-negative rods, gram-negative pleomorphic rods, gram-negative diplococci, and *M. tetragenus*. The gram-negative rods fell into three groups, none of which corresponded with *Bact. granulosis*.

Weiss (30) refers to a culture of *Bact. granulosis* isolated from the tarsus of an advanced case of trachoma in Tunis in 1929. This culture has been under investigation by him for some time and apparently has undergone dissociation, one form corresponding with *Bact. granulosis* and the other being a yellow-pigment producing variant, differing quite markedly from *Bact. granulosis*.

Algeria.—Morax (21) obtained negative results in attempting to isolate *Bact. granulosis* from cases of florid trachoma in Algeria. He states that the number of different bacteria isolated was very small.

CHINA

Tang (19), of Shanghai, studied 24 cases of trachoma in China and isolated only one culture which was at all similar to *Bact. granulosis*. In the words of the investigator, it was a gram-negative rod "which culturally fulfilled Noguchi's description more or less." No reaction was obtained in fermentation tests with any of the carbohydrates studied, including dextrose, lactose, mannite, and saccharose. Since these carbohydrates are all fermented by *Bact. granulosis*, it is probable that Tang's culture was a different organism.

Reimann and Pillat (24) studied 5 cases in northern China and report the following: "A bacillus corresponding in many respects to *B. granulosis* was recovered from one patient. Only 1 colony of this bacillus was found on 1 of 12 blood agar plates inoculated with a mixture of follicle contents and scraped off epithelial cells * * *. Bacilli of this variety were never encountered on the platings made from leptospira medium tubes inoculated with trachomatous material." The description of the organism is insufficient to identify it certainly with *Bact. granulosis*.

EUROPE

England.—In regard to the work of McCartney in England, Mayou (12) reports that *Bact. granulosis* has not been isolated from any cases in that country, though many fresh cases have been examined.

France.—Morax (17) states that he never was able to isolate an organism resembling *Bact. granulosis* from 11 cases which he studied in France.

Poland.—Melanowsky-Lawrynowitsch (21) studied fresh untreated trachoma in 95 children in Warsaw and failed to isolate *Bact. granu-*

losis. The organisms isolated included staphylococci, hemolytic and nonhemolytic streptococci, sarcinæ, *M. tetragenus*, *C. xerosis*, and two chromogenic organisms. Morax-Axenfeld and Koch-Weeks bacilli were not found.

Italy.—Italian workers have apparently been more active in the investigation of trachoma than have those of other European countries. Reports have been published by Giani (13), Bietti (16), Bordonaro (8), Addario (11), and Cattaneo (Sardinia) (25). All of these investigators, with the exception of Cattaneo, report having isolated *Bact. granulosis* or a similar organism from trachoma. Cattaneo studied 15 cases in Sardinia with negative results.

Addario's work is often referred to as confirming the results of Noguchi. Full details of his work do not seem to be available, though he reported to the Italian Ophthalmological Society in March, 1929, that he had succeeded in isolating *Bact. granulosis*. A culture from Addario has been available to me through the Rockefeller Institute. It corresponds with Noguchi's organism culturally, morphologically, and serologically.

The description of one organism isolated by Giani is not sufficiently detailed to identify it with *Bact. granulosis*. He states that his organism bears a close resemblance to the one isolated by Noguchi, though there is a difference in regard to motility.

Bietti reports the isolation of two cultures of *Bact. granulosis* from 16 cases of trachoma which he studied. The morphological and cultural reactions agree with those of *Bact. granulosis*, but no information is given regarding serological reactions, nor is it evident that cultures of Noguchi's organism were used for comparison. The cultures were tested in *Macacus rhesus* monkeys with negative results.

Bordonaro reports the isolation of two cultures resembling *Bact. granulosis*. As in the case of the preceding investigators, no information is given regarding serological tests nor comparison with Noguchi's original cultures.

Czechoslovakia.—Sabata (9) reports negative results in Czechoslovakia, the number of cases studied not being stated. Brückner did not succeed in isolating *Bact. granulosis* from 12 cases studied.

The most recent report is one by Fischer-Ascher (28), who studied 60 cases of trachoma obtained at the ophthalmic clinic at Prague. From 11 of these cases a small bacillus was isolated having the characteristics of *Bact. granulosis*. The author does not state whether fermentation tests were carried out. As in the case of other workers, a more detailed description of the cultures would have been more satisfying, though cultures of *Bact. granulosis* were at hand for comparison. These were used in tests on *Macacus rhesus* monkeys with rather definite results, though results were negative with the author's cultures.

Russia.—Stepanowa and Azarowa (7) were the first workers to state that they had succeeded in confirming the work of Noguchi. They obtained 7 strains of an organism which they consider identical with *Bact. granulosis* from 10 cases of untreated trachoma. The only publication found regarding the work of these authors is a preliminary report in which details are not given and in which no serological tests are reported. A recent report (31), however, describes results obtained with a polyvalent vaccine of *Bact. granulosis* pointing to specificity in comparison with control vaccines of pneumococcus, Koch-Weeks, and Morax-Axenfeld bacilli.

Austria.—Lindner and Rieger (15) isolated an organism twice which they consider identical with *Bact. granulosis* from four cases of folliculosis. The data given are insufficient to identify their cultures certainly with Noguchi's organism.

It is apparent from the preceding review of the literature that the results obtained by various workers are far from being in accord as regards the isolation of *Bact. granulosis* from trachoma. Many negative results have been reported, and some results reported as positive are doubtful. It is probable that there have been many negative results which have not been reported. A study of a collection of representative cultures from all workers who have reported the isolation of *Bact. granulosis* would be of interest. More detailed and definite information in published reports as to cultural behavior, immunological tests, and comparison with Noguchi's cultures are desirable, as has been pointed out.

EXPERIMENTAL PRODUCTION OF GRANULAR LESIONS IN MONKEYS AND APES BY MEANS OF INOCULATION WITH CULTURES OF *Bact. granulosis*, BY PASSAGE FROM ANIMAL TO ANIMAL AND BY DIRECT TRANSMISSION TO ANIMALS FROM CASES OF HUMAN TRACHOMA

Results obtained by various workers in inoculation experiments in monkeys and apes using cultures of *Bact. granulosis* are contradictory. Dating from the discovery of the organism, we now have records of the results produced in some 300 monkeys and apes. These range from those positive in greater or less degree in all cases to those entirely negative. Since the condition produced in monkeys and apes differs in certain respects from that seen in human trachoma, it is somewhat difficult to interpret the lesions which do develop.

Before discussing the subject more in detail the evidence at hand may be summarized as follows, referring in particular to *Macacus rhesus* monkeys: These animals are comparatively refractory to direct transmission of the disease from human cases, as they are also to inoculation with cultures of *Bact. granulosis*. A number of workers have been unsuccessful in producing a definite progressive type of

lesion lasting over a considerable period following inoculation with cultures. Such lesions have been produced by workers of the Rockefeller Institute, however, and by Finnoff and Thygeson. This definite type of lesion when once established is easily transmissible from animal to animal, as will be discussed later.

Inoculation experiments with cultures of *Bact. granulosis* are summarized in the accompanying table. By far the greater number of animals used have been *Macacus rhesus* monkeys. A few chimpanzees and a few of the lower forms have also been used.

Results of inoculations of monkeys and apes with cultures of Bact. granulosis

Investigator	Number of animals	Species	Results
Noguchi (2)	17	16 *Macacus rhesus*; 1 chimpanzee	4++++, 5+++, 1++, 3+, 3±, 1−.
Finnoff and Thygeson	13	*Macacus rhesus*	1++++, 3+++, 3++, 2±, 2−, 2 died.
Tilden and Tyler	77	74 *Macacus rhesus*; 3 chimpanzees.	15++++, 11+++, 5++, 6+, 40−.
Olitsky, Knutti, and Tyler (5)	6	*Macacus rhesus*	4 "characteristic granular conjunctivitis"; 2 negative.
Wilson (26)	7	1 *Cercopithecus aethiops*; 3 *Macacus sinicus*; 3 *Macacus rhesus*.	7 negative.
Weiss (20)	43	32 *Macacus rhesus*; 1 baboon; 2 *Macacus inuus*; 5 chimpanzees; 1 Callitriche.	16 mild and transient lesions persisting up to 4 months; 27 negative.
Bietti (44)	7	*Macacus rhesus*	2 follicles persisting more than 3 months; 3 indefinite at end of 2 months; 2 sl. hyperemia in 30 days.
Bengtson	19	*Macacus rhesus*	2++, 10+, 3±, 4− (++ mild transient lesions lasting 3 to 4 months).
McKinley (32)	24	12 *Macacus rhesus*; 12 *Cebus olivaceous*.	24 negative.
Fischer-Ascher (28)	9	*Macacus rhesus*	2 conjunctival secretion, redness and diffuse infiltration of conjunctiva and semilunar fold. Some follicles on tarsal conjunctiva. Alternate periods of activity and quiescence; 7 negative.

Noguchi used + + + + to indicate "very extensive lesions showing no retrogression in 8 months; + + + less extensive lesions becoming stationary in about 4 months; + + moderate lesions receding in about 3 months; ± mild lesions lasting 2 months or longer." The same designations were used by Tilden and Tyler.

It seems probable that positive results in animals are more likely to result with recently isolated cultures than with those which has been on artificial culture media for an extended period. This may at least partly explain the reason why those who have used old cultures have failed to produce the definite chronic type of lesions which has been obtained by the workers of the Rockefeller Institute and by Finnoff and Thygeson who have isolated cultures.

TRANSMISSION OF GRANULAR CONDITION FROM ANIMAL TO ANIMAL

A number of transmission experiments were performed by Noguchi (2), and these were continued through a fourth passage from the animals originally infected with the culture. Similar experiments were carried out by Tilden and Tyler. The results of these experiments and those of others are shown in the following table:

Investigator	Number of animals and method of inoculation	Results
Noguchi	59 (inoculation of suspension of affected tissue).	14++++, 9+++, 3++, 12+, 1±, 20−.
Tilden and Tyler	36 (inoculation of suspension of affected tissue).	8++++, 3+++, 3++, 22−.
Wilson	2 (inoculation of suspension of affected tissue).	2 "unquestionably positive results with marked follicle formation."
Olitsky, Knutti, and Tyler	2 (swabbed 6 times over period of 8 days).	2 "characteristic granular conjunctivitis."
Bengtson	7 (swabbed a single time)	7++++.

Attention is called to the fact that in the tests carried out by the writer the definite granular progessive type of lesion was transmitted from animal to animal in all cases by swabbing a single time.[3] In all of the transmission experiments carried out by Noguchi and by Tilden and Tyler, tissue was removed, ground, suspended in salt solution, and injected subconjunctivally. Olitsky, Knutti, and Tyler report positive transmission by swabbing monkey secretions six times. A record of my transmission experiments is shown in the following table:

Monkey No.	Date of transmission	Transfer from monkey No. —	Passage	Uninoculated eye involved	Results
521	May 24, 1931	D	First	Aug. 1, 1931	++++, receding March, 1931.
520	Aug. 1, 1931	521	Second	Aug. 20, 1931	++++, active March, 1932.
245	Aug. 17, 1931	521	do	Sept. 24, 1931	Do.
464	Oct. 30, 1931	520	Third	Dec. 4, 1931	Do.
467	do	245	do	Nov. 18, 1931	Do.
453	do	521	Second	do	Do.
535	Nov. 18, 1931	453	Third	Dec. 4, 1931	Do.

The lesions were definite and extensive, consisting of numerous rather large follicles in the retrotarsal fold of both the upper and lower lids and in some cases extending over the tarsus, the blood vessels often being obliterated. Evidence of congestion and beginning follicle formation was seen as early as seven days after the transmission in some cases. It thus appears that a simple and easy method of transmission of the granular condition from animal to animal is available. It is probable that the propagation of the condition may be continued indefinitely.

[3] I am indebted to Dr. Phillips Thygeson for furnishing the successfully infected monkey from which this series was started.

The ease with which the granular condition may be transmitted from animal to animal when once established is also shown by the fact that in many cases it occurs spontaneously in the uninoculated eye (Noguchi (2), Tilden and Tyler (4), Olitsky, Knutti, and Tyler (5), Finnoff and Thygeson (3)), and also that it is transmitted by contact, i. e., placing untreated monkeys in a cage with those which have developed the condition. Contact experiments have been reported by Olitsky, Knutti, and Tyler (5), Finnoff and Thygeson (3), and Wilson (26). In these experiments six animals were exposed and four developed lesions.

ATTEMPTS TO TRANSMIT TRACHOMA DIRECTLY FROM MAN TO VARIOUS MONKEYS AND APES

While a considerable number of attempts were made to transmit trachoma directly from man to monkeys and apes prior to Noguchi's isolation of *Bact. granulosis*, apparently rather few efforts have been made since that time to carry out such experiments, though a comparison of the lesions produced would seem to be of value as an aid in determining whether the condition produced by the inoculation of *Bact. granulosis* is the counterpart of human trachoma.

The early literature bearing on this subject has been reviewed by Heymann (32), Axenfeld (34), Noguchi (2), and Morax and Petit (35). The workers preceding Noguchi considered chimpanzees and baboons more suitable for transmission experiments than *Macacus rhesus* monkeys, and most of their tests were made with these animals. Bajardi (36) attempted transmission of trachoma to one *Cercopithecus* and three *Macacus* monkeys. He reports mild but rather definite lesions, which reached their height in seven or eight weeks. Bertarelli and Cecchetto (37) produced what they describe as trachoma in a large *Macacus* (*Inuus cynomolgus*), using unfiltered material from a trachoma case. The condition reached a maximum in 45 days, resembling florid trachoma in man. It persisted for some time, but was healed at the end of nine months.

Noguchi (2) was unsuccessful in his attempts to transmit trachoma directly to *Macacus rhesus* monkeys from the cases of trachoma among American Indians from which he isolated his cultures of *Bact. granulosis*, attributing his failure to the possibly small number of organisms in the material used for the experiment.

Olitsky, Knutti, and Tyler (5) report the successful transmission of trachoma to *Macacus rhesus* monkeys from human cases. The material used was "affected conjunctivae, removed for curative purposes," which they refer to as material from a tarsectomy operation in commenting on one case. This was ground in saline solution and injected

subconjunctivally, only one eye of the animal being used. The results of their experiments may be summarized thus:

17 *Macacus rhesus* monkeys	5 characteristic experimental disease passing to uninoculated eye; 4 follicles in both eyes; 8 negative.

In another series of tests the secretions from 2 cases were transferred to monkeys by means of cotton swabs, 9 swabbings from one case being used and 7 from the other. The results may be summarized as follows:

6 monkeys	4 developed characteristic granular conjunctivitis; 1 negative; 1 died.

In none of this series did the uninoculated eye become involved. The writers state that both in the animals inoculated and in those swabbed the clinical appearance of the condition produced was identical with that induced by cultures of *Bact. granulosis*, as were also the microscopic changes in the conjunctiva.

Weiss (20) reports a direct transmission experiment with one chimpanzee, using this animal as a control on two other chimpanzees inoculated with cultures of *Bact. granulosis*. He states that the results with fresh trachomatous material were strikingly different from those obtained in the animals inoculated with cultures. The latter two animals developed a few small transient follicles on the tarsal and palpebral conjunctivæ, while the one inoculated with the human material developed a condition much more like human trachoma clinically and histologically.

Wilson (26) inoculated two *Cercopithecus æthiops* and two *Macacus rhesus* monkeys with human trachomatous material. The former species developed marked lesions involving the uninoculated eye. These later subsided into a condition indistinguishable from folliculosis in monkeys. The latter developed lesions only in the inoculated eye and these also were indistinguishable from the spontaneous folliculosis of monkeys.

I have attempted direct transmission to 23 *Macacus rhesus* monkeys from trachoma cases in Rolla, Mo., Richmond, Ky., and Bainbridge, Ga. The methods used were those of subconjunctival inoculations of excised tissue suspended in salt solution, transplanting of excised tissue from human conjunctiva to monkey conjunctiva, and repeated swabbing. The results of these experiments may be summarized as follows:

(*a*) Subconjunctival inoculation of suspension of trachomatous tissue—	
2 monkeys	1++, 1+; uninoculated eyes not affected.

(b) Grafts of human trachomatous conjunctiva on monkey conjunctiva—	
6 monkeys	1+++, 2++, 3+; uninoculated eye affected in 1 (++).
(c) Repeated swabbings—	
15 monkeys	2+++, 3++, 3+3±, 2−, 2 died; uninoculated eye affected in 5 (1+++, 2++, 2±).

(+++ indicates congestion, hypertrophy of conjunctival tissue and follicle formation persisting for three months or more; ++ indicates a few follicles persisting for about three months; + congestion of conjunctiva and indefinite follicle formation; and ± congestion of conjunctiva persisting for several months.)

The transplanting of tissue was performed by Acting Asst. Surg. Gordon B. Carr, in charge of the trachoma hospital in Rolla. A diamond-shaped section of conjunctiva was snipped with a small pair of scissors from the upper lid of the trachoma patient. This was immediately transplanted to the lid of the monkey, which was in readiness, a section of the conjunctiva of approximately the same size and shape having been removed under ether anesthesia. The transplanted conjunctiva was held in place by sutures at the four corners. In all cases the grafts remained in position and there was no sloughing. The resultant reaction was rather severe, the whole conjunctival surface becoming congested and oedematous. This acute reaction subsided in 2 or 3 weeks. One animal developed rather definite follicles, which persisted for about three months, and there were a few follicles in the uninoculated eye. Two others developed transient follicles in the inoculated eye.

On the whole, the results of our experiments in attempting to transmit trachoma directly from the human conjunctiva to the conjunctiva of *Macacus rhesus* monkeys have not yielded very striking results. No very marked lesions persisting over a long period have developed, as compared with the lesions which developed in the 7 monkeys referred to in the discussion on the transmission of the condition initiated by the inoculation of cultures of *Bact. granulosis*. As previously stated, in these monkeys definite, progressive, and chronic lesions developed; and these could be transmitted to other monkeys by merely swabbing a single time. It has been the hope that similar lesions might be found to result by direct transfer from human trachoma to *Macacus rhesus* monkeys and that it could then be determined whether the condition was as easily transmissible as that referred to. Passage to other monkeys by swabbing was attempted with the monkeys with + + + lessions, but only slight or indefinite results were obtained.

The question as to whether the condition produced in monkeys by direct transfer from human trachoma can be continued by passage has a bearing on the rôle of *Bact. granulosis* in trachoma. With the exception of Nicolle and his coworkers (38), who used chimpanzees

and baboons, no one has succeeded in maintaining a granular condition in animals produced by transfer of human trachomatous material beyond the second or third passage. Hess and Römer (39) produced a granular condition in a baboon and transmitted the affection to another baboon three weeks after the lesions appeared. In this baboon, lesions appeared in 14 days and remained stationary for 4 months. An attempt to accomplish a third passage to two other baboons resulted only in some microscopic follicles. Negative results were also obtained when an attempt was made to transfer the condition from the inoculated to the uninoculated eye. If it can be shown that the condition produced in *Macacus rhesus* monkeys by direct transfer from cases of human trachoma is as definite and as easily transmissible as that induced by inoculation with *Bact. granulosis*, then we would feel more certain of the relationship of *Bact. granulosis* to the human disease.

HUMAN INOCULATIONS WITH CULTURES OF *Bact. granulosis*

The inoculation of the human conjunctiva with *Bact. granulosis* has been advocated as a means of determining the relationship of the organism to the disease. A limited number of such experiments have been performed; but with one or two exceptions the results have been indefinite or negative. It seems quite probable that not all persons are susceptible. We know that all members of the same family do not necessarily contract the disease under natural conditions. The human inoculations reported include those by Weiss (3), Wilson (26), Proctor, Richards, and others (40), Bietti (44), Lindner and Rieger (15), Addario (43), Nicolle and Lumbroso (41), and Proctor, Finnoff, and Thygeson (45). The results of these experiments may be summarized as follows:

Investigator	Number of subjects	Results
Proctor, Richards et al	2	1++++, 1±.
Weiss	4	4−.
Wilson	4	2± acute conjunctivitis of short duration. 2−.
Bietti	1	1−; result indefinite.
Lindner and Rieger	1	1± (cultures isolated from case of folliculosis).
Addario	1	1++++.
Nicolle and Lumbroso	2	2−.
Proctor, Finnoff, and Thygeson	1	1−.

The case reported by Addario was that of a blind subject inoculated with one of Noguchi's cultures. The eye developed what Addario considered all the pathognomic symptoms of trachoma, the lesions persisting over 10 months. Proctor and Thygeson (45) saw this case and report that at 18 months the subject showed a MacCallan III trachoma (beginning cicatrization).

One of the cases reported by Proctor, Richards, and collaborators was that of Doctor Richards, who volunteered himself as a subject. One eye was inoculated with 5 strains of *Bact. granulosis* and the other with mixed infected monkey's tissue and a culture of *Bact. granulosis* isolated from a *Macacus rhesus* monkey inoculated with the organism. Follicles, induration, and thickening of the conjunctiva developed, the condition being considered by the writers to be indistinguishable from beginning trachoma. An acute flare-up occurred on the fifty-fourth day and treatment with silver and copper was begun. After six weeks of treatment the eyes returned practically to normal.

It may be said, on the whole, that the results of human inoculations have been almost as inconclusive as those carried out on monkeys. Whether it will be possible to determine more definitely the relationship of the organism to the disease would seem to depend to some extent on the use of freshly isolated cultures tested on a sufficiently large number of suitable subjects, though it is quite probable that some other factor is concerned. It appears that the organism in its normal habitat on the conjunctiva may be in such condition that it is capable at times of inciting infection when secretion containing it is transferred directly to the conjunctiva of another subject, whereas if transferred from an artificial environment, such as the culture media we use, it loses its power to infect readily. This has been shown to be true in monkeys; for it is very difficult to initiate an infection with *Bact. granulosis*, but easy to transmit it when once established. There is considerable evidence to indicate that trachoma is transmissible by transfer of secretion from trachomatous to nontrachomatous subjects. The literature on this phase of the subject has been well covered by Morax and Petit (35), who cite a number of instances of accidental infection of normal subjects from trachoma cases as well as reports in the literature of successful attempts to transmit the disease experimentally. Taboriski (42) recently reported his results in attempting to transfer the disease from trachomatous to normal conjunctiva and states that in 5 attempts all were successful in spite of the constitutional variations in the subjects. Many cases of trachoma have been reported among soldiers of the Russian and Austrian armies, who voluntarily infected themselves by transferring the secretions from trachoma cases to their own eyes, by means of cotton swabs, in order to avoid military service.

SUMMARY

A review of the literature bearing on the subject of the isolation of *Bact. granulosis* from trachoma in various parts of the world shows a wide variation in the results obtained. Noguchi's results appear to have been satisfactorily confirmed by two groups of workers in

this country—Finnoff and Thygeson, of Denver, and by several workers of the Rockefeller Institute for Medical Research in New York. The results of the work carried out by the writer in Missouri, under the auspices of the United States Public Health Service, have been negative as regards the isolation of *Bact. granulosis*. In other countries positive results have been reported by workers in Russia, Italy, and Czechoslovakia, but their evidence is not entirely convincing. Negative or doubtfully positive results have been reported from Egypt, Algeria, Tunis, England, Poland, France, Czechoslovakia, and China.

It is pointed out that other gram-negative organisms are encountered in trachoma which may be confused with *Bact. granulosis*. In order to identify organisms isolated with Noguchi's organism it is necessary to have known cultures of *Bact. granulosis* with which to compare the organisms isolated, or to carry out agglutination tests with *Bact. granulosis* immune serum.

Conflicting results have been reported by various workers regarding the effect of inoculation of *Bact. granulosis* in *Macacus rhesus* monkeys and chimpanzees. At times a definite, chronic, and progressive type of lesion, which is unmistakable, results. At other times indefinite or entirely negative results are obtained. On the whole it may be said that successful implantation of *Bact. granulosis* in the conjunctiva of *Macacus rhesus* monkeys is difficult and uncertain. It is probable that for the most part success has been attained with recently isolated cultures.

Attention is called to the fact that when once successfully induced by the inoculation of *Bact. granulosis*, the definite, chronic type of lesion is very easily transmissible. The writer has transferred the condition from infected to normal monkeys in all cases attempted by merely rubbing the affected conjunctiva once with a sterile cotton swab, then rubbing this into the conjunctiva of a fresh monkey. Previous workers have for the most part used the method of injecting subconjunctivally tissue removed from the infected monkey.

The question is raised whether the condition induced by direct transmission from human cases to *Macacus rhesus* monkeys is as easily transmissible as that initiated by inoculation with *Bact. granulosis*. No one has yet reported continued passage of a granular condition in a series of monkeys in which the condition was initiated by direct passage from cases of human trachoma. Further work along this line and a comparison of the lesions induced by the two methods of infection is desirable. This has a bearing on the question of the relationship of *Bact. granulosis* to human trachoma.

In attempts by the writer to accomplish direct transmission of trachoma from human cases to *Macacus rhesus* monkeys by various means, an appearance somewhat suggestive of that induced by *Bact.*

granulosis has been obtained in a few of the 23 animals used, but the lesions have been much less extensive and of comparatively short duration. An effort is being made to determine whether more extensive lesions may be produced and whether these can be transmitted by passage through a series of monkeys.

Results obtained in human inoculations with *Bact. granulosis* as described in the literature have for the most part yielded negative or doubtfully positive results. In one instance the definite, chronic progressive lesions persisting over a considerable period were observed. It is not possible to draw conclusions on this phase of the problem at the present time.

It must be conceded, however, that the finding of *Bact. granulosis* in certain sections of this country and perhaps in other parts of the world merits its consideration as an etiological factor in trachoma. It has been possible with this organism to produce a granular condition in *Macacus rhesus* monkeys which may correspond with human trachoma and which is easily transmissible from animal to animal. The negative bacteriological findings of many workers remain to be explained. More efficient methods for demonstrating the organism than those now in use are greatly to be desired. On the other hand, there is a possibility that the organism is not present and therefore not the etiological factor concerned in the disease in certain localities. Certainly a difference in the bacterial flora is manifest in different localities, as has been noted by the writer in studies of trachoma in the States of Missouri and Georgia.

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COURT DECISION RELATING TO PUBLIC HEALTH

City of Newport News held authorized to discharge untreated sewage into tidal waters.—(Virginia Supreme Court of Appeals; Commonwealth ex rel. Atty. Gen. *v.* City of Newport News et al., 164 S. E. 689; decided June 16, 1932.) A suit was brought by the State of Virginia, at the relation of the attorney general acting under the authority and direction of the governor, against the city of Newport News and the members of the city council to restrain the city from discharging untreated sewage into tidal waters. The gist of the complaint was that the discharge of untreated sewage in any considerable volume at any point in any manner into the waters of Hampton Roads or its estuaries was illegal because it polluted the waters and rendered shellfish and fish taken therefrom unfit for human food and thereby subsequently impaired and in effect destroyed the right of fishery in those waters. The plaintiff contended that the State held the tidal waters and the lands thereunder upon a trust for the people of the State so that they could enjoy the use thereof not only for purposes of navigation but also for the purpose of taking fish and shellfish therefrom, and that, therefore, the State had no right or power to authorize or suffer them to be used for any purpose or in any manner which would destroy or substantially impair the use thereof by the people for fishery. The supreme court of appeals stated that, "if it be not established either that the State or that the State legislature is without power to authorize, permit, or suffer the tidal waters and their bottoms to be used for any purpose which has the effect of taking away or substantially impairing the use thereof by the people for taking fish and shellfish therefrom," the case was controlled by certain former decisions of the court, one of which had been affirmed by the United States Supreme Court.

After a lengthy discussion the court concluded that the legislature, in the absence of any constitutional provision on the subject, had the right to take away the right of fishery in tidal waters or to authorize, permit, or suffer its tidal waters or their bottoms to be used for purposes which impair or even destroy their use for purposes of fishery and could lease or sell to private persons portions of its tidal bottoms with the right to use them for private purposes to the exclusion of the

use of the waters thereover for purposes of fishery. It was then pointed out that the only constitutional provision which contained any restriction upon the power of the legislature to dispose of the tidal bottoms of the State and the waters above them was one which read as follows:

> The natural oyster beds, rocks, and shoals in the waters of this State shall not be leased, rented, or sold, but shall be held in trust for the benefit of the people of this State subject to such regulations and restrictions as the general assembly may prescribe, but the general assembly may, from time to time, define and determine such natural beds, rocks, or shoals by surveys or otherwise.

The reasonable and proper construction of this provision was declared by the court to be that it related to private uses and not public uses, and that it had no application to restrict the power of the legislature to authorize, permit, or suffer tidal waters, including those over natural oyster rocks, to be used for any public purpose to which they were at common law subject or the legislature should deem it to be for the benefit of the people to authorize or suffer. The court declared that the use of tidal waters for the discharge into them of sewage was a public use, and, in holding that the city of Newport News had the right to discharge untreated sewage into tidal waters, concluded its opinion with the following language:

> Our conclusion is that the general assembly has the power to authorize, permit, or suffer sewage to be discharged into Hampton Roads and its estuaries and to subject the discharge of sewage into these waters to no restrictions relative to its injury to fishery therein or to such restrictions as it may deem proper; that it has authorized and permitted the city of Newport News to discharge the raw, untreated sewage into these waters; and that to what extent these waters may be used for the purpose of sewage disposal and to what extent they shall be devoted to purposes of fishery and the restrictions and limitations to be placed on these several uses are questions committed by the constitution to the discretion of the legislature free from the control or interference of either the executive or judicial department of the government.

DEATHS DURING WEEK ENDED AUGUST 27, 1932

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Aug. 27, 1932	Corresponding week, 1931
Data from industrial insurance companies:		
Policies in force	71,074,390	74,972,336
Number of death claims	11,304	12,281
Death claims per 1,000 policies in force, annual rate	8.3	8.5
Death claims per 1,000 policies, first 34 weeks of year, annual rate	9.8	10.1
Data from 85 large cities of the United States:		
Total deaths	6,612	6,682
Deaths per 1,000 population, annual basis	9.4	9.7
Deaths under 1 year of age	578	640
Deaths under 1 year of age per 1,000 estimated live births [1]	48	49
Deaths per 1,000 population, annual basis, first 34 weeks of year	11.4	12.3

[1] 1932, 81 cities; 1931, 77 cities.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended September 3, 1932, and September 5, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended September 3, 1932, and September 5, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Sept. 3, 1932	Week ended Sept. 5, 1931	Week ended Sept. 3, 1932	Week ended Sept. 5, 1931	Week ended Sept. 3, 1932	Week ended Sept 5, 1931	Week ended Sept 3, 1932	Week ended Sept. 5, 1931
New England States:								
Maine	3	1	9		5	2	0	1
New Hampshire							0	0
Vermont	3				1		0	0
Massachusetts	19	38	2	1	32	26	0	2
Rhode Island		1			3	12	0	0
Connecticut	11	6		2	7	5	0	0
Middle Atlantic States:								
New York	38	60	[1] 4	[1] 4	80	80	3	6
New Jersey	9	17	2		39	13	1	1
Pennsylvania	41	71			51	59	5	6
East North Central States:								
Ohio	15	25	6	1	24	18	4	1
Indiana	23	11	10	8	7	4	0	2
Illinois	84	54	25	11	20	20	1	4
Michigan	8	17			39	13	8	1
Wisconsin	12	12	39	13	29	17	2	1
West North Central States:								
Minnestoa	4	7	2		4	6	1	5
Iowa	3	4				1	0	0
Missouri	20	20			2	5	0	1
North Dakota	1	1			2		0	0
South Dakota		3				1	0	0
Nebraska	4	4			3	1	0	0
Kansas	14	10		1	8	4	2	3
South Atlantic States.								
Delaware	1	1				1	0	0
Maryland [2,3,4]	7	11	1	3	4	8	1	1
District of Columbia	2	2				1	1	0
Virginia	20				5		0	
West Virginia	35	10		11	18	10	0	0
North Carolina [3]	41	81	12		20	10	1	2
South Carolina [3]	14	23	102	184	2	10	0	0
Georgia [3]	23	13	19	5	1		0	0
Florida [3]	25	3	3		3	3	0	0
East South Central States:								
Kentucky	42	42	4		4		1	1
Tennessee	37	46	6	8	1	4	1	2
Alabama [3]	50	19	6	1	1	5	2	1
Mississippi	23	63					0	1

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended September 3, 1932, and September 5, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Sept. 3, 1932	Week ended Sept. 5, 1931	Week ended Sept. 3, 1932	Week ended Sept. 5, 1931	Week ended Sept. 3, 1932	Week ended Sept. 5, 1931	Week ended Sept. 3, 1932	Week ended Sept. 5, 1931
West South Central States:								
Arkansas	23	16	6		6	2	0	0
Louisiana [3]	20	31	6	8	3	1	3	2
Oklahoma [4]	39	36	5	19		2	1	0
Texas [3]	87	34	16		4	1	0	2
Mountain States:								
Montana					27	8	0	3
Idaho							0	0
Wyoming [4]	1	1	1		3	2	0	0
Colorado	6	10			5	2	0	0
New Mexico	8	1					1	0
Arizona	3	2	1		3	2	0	2
Utah [3]	2	1		6	2	2	0	1
Pacific States:								
Washington	3	1			7	9	0	2
Oregon	2	1	11	7	8	4	0	2
California	13	31	82	20	23	57	1	0
Total	789	841	380	263	506	431	35	59

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Sept. 3, 1932	Week ended Sept. 5, 1931	Week ended Sept 3, 1932	Week ended Sept 5, 1931	Week ended Sept 3, 1932	Week ended Sept. 5, 1931	Week ended Sept. 3, 1932	Week ended Sept. 5, 1931
New England States:								
Maine	0	5	9	5	0	0	3	5
New Hampshire	0	2	2	0	0	0	1	0
Vermont	0	6	5	0	0	1	0	0
Massachusetts	2	184	55	99	0	0	9	8
Rhode Island	0	14	3	11	0	0	0	3
Connecticut	3	162	9	12	0	0	2	2
Middle Atlantic States.								
New York	20	554	77	76	8	1	45	47
New Jersey	33	84	26	40	0	0	11	8
Pennsylvania	113	20	134	86	0	0	92	56
East North Central States:								
Ohio	6	6	144	69	0	5	100	59
Indiana	0	4	20	24	1	4	20	16
Illinois	11	42	58	68	2	9	35	40
Michigan	7	107	46	73	1	4	23	20
Wisconsin	1	69	15	9	0	2	8	7
West North Central States:								
Minnesota	11	50	17	9	0	0	3	0
Iowa	3	6	5	10	2	3	8	1
Missouri	0	3	28	14	0	1	30	15
North Dakota	0	2	4	2	0	4	8	8
South Dakota	1	2	3	9	0	0	3	3
Nebraska	0	5	7	6	0	1	1	4
Kansas	6	1	19	8	1	0	24	8
South Atlantic States:								
Delaware	3	0	4	2	0	0	1	4
Maryland [2 3 4]	1	5	30	14	0	0	27	47
District of Columbia	8	0	6	2	0	0	6	1
Virginia	1	1	33		0	3	38	
West Virginia	4	3	23	11	0	2	87	46
North Carolina [3]	1	5	45	55	1	0	36	74
South Carolina [3]	2	1	7	5	0	0	41	57
Georgia [3]	0	0	12	6	0	0	72	43
Florida [3]	0	0	3	5	0	0	6	1
East South Central States:								
Kentucky	0	1	34	43	0	2	98	51
Tennessee	4	0	40	25	0	0	74	69
Alabama [3]	5	4	32	34	1	0	33	32
Mississippi	0	1	10	17	0	5	23	21

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended September 3, 1932, and September 5, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Sept. 3, 1932	Week ended Sept. 5, 1931	Week ended Sept. 3, 1932	Week ended Sept. 5, 1931	Week ended Sept. 3, 1932	Week ended Sept. 5, 1931	Week ended Sept. 3, 1932	Week ended Sept. 5, 1931
West South Central States:								
Arkansas	2	1	7	5	0	0	23	18
Louisiana [3]	2	2	9	11	0	1	39	39
Oklahoma [5]	2	0	11	16	0	3	49	32
Texas [3]	0	1	19	19	0	0	82	58
Mountain States:								
Montana	0	2	7	22	3	5	6	0
Idaho	0	0	1	3	0	1	0	0
Wyoming [4]	0	1	7	4	1	0	1	1
Colorado	0	0	10	3	0	1	13	7
New Mexico	1	0	13	0	0	0	4	3
Arizona	0	1	3	2	0	0	1	5
Utah [2]	0	0	5	1	0	0	1	4
Pacific States.								
Washington	0	4	25	11	6	15	8	4
Oregon	0	1	3	5	1	6	8	11
California	9	8	40	61	4	3	6	15
Total	262	1,370	1,125	1,012	32	82	1,209	953

[1] New York City only
[2] Week ended Friday.
[3] Typhus fever, week ended Sept 3, 1932, 43 cases 3 cases in Maryland, 1 case in North Carolina, 1 case in South Carolina, 8 cases in Georgia, 4 cases in Florida, 13 cases in Alabama, 1 case in Louisiana, and 12 cases in Texas.
[4] Rocky Mountain Spotted fever, week ended Sept. 3, 1932, 2 cases 1 case in Maryland and 1 case in Wyoming.
[5] Figures for 1932 are exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
July, 1932										
Arkansas		10	5	160	4	160	2	5	5	128
Nevada	1	2	3		5		1		0	0
South Carolina		36	497	1,685	218	704	9	12	0	273
South Dakota	2	8			10		0	21	4	7
Texas	2	168	125	953			21	118		251
Virginia	5	53		54	215	127	6	84	2	254
August, 1932										
Nebraska	5	20		1	10		3	40	3	12

July, 1932

	Cases
Anthrax:	
Arkansas	1
Chicken pox:	
Arkansas	17
Nevada	2
South Carolina	37
South Dakota	16
Virginia	83
Diarrhea	
South Carolina	1,161
Diarrhea and dysentery:	
Virginia	1,921
German measles:	
South Carolina	1
Hookworm disease:	
Arkansas	3
South Carolina	79

	Cases
Lethargic encephalitis:	
South Carolina	5
Virginia	3
Mumps:	
Arkansas	17
South Carolina	85
South Dakota	1
Ophthalmia neonatorum:	
South Carolina	12
Virginia	1
Paratyphoid fever:	
South Carolina	21
Texas	12
Virginia	14
Rocky Mountain spotted or tick fever:	
Nevada	1
Virginia	5
Scabies:	
South Carolina	4
Tetanus:	
South Dakota	2
Virginia	3
Trachoma:	
Arkansas	2
South Carolina	1
South Dakota	8
Virginia	3

	Cases
Trichinosis:	
South Dakota	1
Tularaemia:	
Nevada	5
Virginia	4
Typhus fever:	
South Carolina	4
Virginia	6
Undulant fever:	
South Carolina	1
South Dakota	1
Virginia	6
Whooping cough:	
Arkansas	28
Nevada	45
South Carolina	139
South Dakota	29
Virginia	897

August, 1932

Nebraska:	
Chicken pox	10
Mumps	27
Whooping cough	108

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 94 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 33,755,000. The estimated population of the 88 cities reporting deaths is more than 32,275,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended August 27, 1932, and August 29, 1931

	1932	1931	Estimated expectancy
Cases reported			
Diphtheria:			
46 States	665	695	
94 cities	153	193	334
Measles:			
45 States	725	545	
94 cities	157	140	
Meningococcus meningitis:			
46 States	38	65	
94 cities	17	21	
Poliomyelitis:			
46 States	251	1,319	
Scarlet fever:			
46 States	933	935	
94 cities	288	262	224
Smallpox:			
46 States	45	137	
94 cities	6	6	7
Typhoid fever:			
46 States	1,043	961	
94 cities	163	141	143
Deaths reported			
Influenza and pneumonia:			
88 cities	305	302	
Smallpox:			
88 cities	0	0	

City reports for week ended August 27, 1932

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded, and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1923 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	0	0	0		0	0	0	0
New Hampshire:								
Concord	0	0	0		0	0	0	0
Vermont:								
Barre	0	0	0		0	1	1	0
Burlington	0	0	0		0	0	1	0
Massachusetts:								
Boston	4	12	0	1	0	5	11	8
Fall River	1	1	1		0	1	0	0
Springfield	0	1	1		0	1	0	0
Worcester	1	2	0		0	1	0	2
Rhode Island:								
Pawtucket	0	0	0		0	0	0	0
Providence	0	2	0		0	0	0	4
Connecticut:								
Bridgeport	0	2	0	1	1	1	2	1
Hartford	0	1	0		0	1	0	0
New Haven	0	1	1		0	0	1	0
MIDDLE ATLANTIC								
New York:								
Buffalo	3	5	0		0	4	0	9
New York	18	71	34	3	1	38	38	68
Rochester	0	2	0		0	4	0	1
Syracuse	0	1	0		0	0	0	2
New Jersey:								
Camden	0	1	0	2	2	0	0	0
Newark	2	6	1		0	7	10	1
Trenton	0	0	0		0	3	0	2
Pennsylvania:								
Philadelphia	4	21	5	2	1	4	7	13
Pittsburgh	1	8	3		0	0	3	16
Reading	0	0	0		0	3	2	2
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	0	2	0		0	1	0	8
Cleveland	7	13	1	3	0	3	6	9
Columbus	1	2	1		0	0	0	1
Toledo	0	3	0		0	3	0	4
Indiana:								
Fort Wayne	0	1	1		0	0	0	2
Indianapolis	0	1	2		0	0	3	4
South Bend	0	0	0		1	0	0	1
Terre Haute	0	0	0		0	0	0	0
Illinois:								
Chicago	9	44	13	2	2	17	3	28
Springfield	0	1	2	1	0	0	0	1
Michigan:								
Detroit	4	20	6		0	22	1	9
Flint	0	1	0	6	0	0	0	2
Grand Rapids	1	1	0		0	0	6	1

City reports for week ended August 27, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
EAST NORTH CENTRAL—continued								
Wisconsin:								
Kenosha	2	0	0		0	2	3	0
Madison	0	0	0			0	0	
Milwaukee	5	5	1		0	2	1	2
Racine	1	0	0		0	0	0	0
Superior	1	0	0		0	0	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth	2	0	0		0	0	1	1
Minneapolis	3	6	0		0	0	1	3
St. Paul	2	3	0		0	0	0	4
Iowa:								
Des Moines	0	1	2			0	0	
Sioux City		0						
Waterloo	0	0	0			0	0	
Missouri:								
Kansas City	1	1	1		0	3	0	5
St. Joseph	0	0	1		0	0	0	1
St. Louis	1	12	4			1	2	2
North Dakota:								
Fargo	0	0	0		0	0	0	0
Grand Forks	0	0	0			0	0	
South Dakota:								
Sioux Falls	0	0	0			0	0	
Nebraska:								
Omaha	0	3	1		0	0	0	1
Kansas:								
Topeka	0	0	0		0	3	0	3
Wichita	0	0	1		0	0	0	0
SOUTH ATLANTIC								
Delaware:								
Wilmington	0	1	0		0	0	0	3
Maryland:								
Baltimore	2	9	2	1	0	1	5	10
Cumberland	0	0	0		0	0	0	0
Frederick	0	0	0		0	0	0	1
District of Columbia:								
Washington	2	6	1		0	2	0	3
Virginia:								
Lynchburg	0	0	0		0	0	0	0
Norfolk	0	1	0		0	2	0	1
Richmond	0	4	0		0	1	0	1
Roanoke	0	1	0		0	0	0	0
West Virginia:								
Charleston	0	0	0		0	0	0	2
Huntington	0	1	1		0	0	0	
Wheeling	1	1	1		0	0	0	1
North Carolina:								
Raleigh	0	1	0		0	0	0	1
Wilmington	0	0	1		0	0	0	0
Winston-Salem	0	1	1		0	13	0	1
South Carolina:								
Charleston	0	0	1	2	0	0	0	1
Columbia	0	0	0		0	0	0	2
Georgia:								
Atlanta	0	4	1	9	0	0	0	2
Brunswick	0	0	0		0	0	0	0
Savannah	0	0	0		0	0	0	3
Florida:								
Miami	0	0	1		0	1	0	0
Tampa	0	1	5		0	0	0	1

City reports for week ended August 27, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL								
Kentucky:								
Covington		0						
Lexington	0		0		0	0	0	
Louisville	0		3	1	0	0	1	7
Tennessee:								
Memphis	0	1	1		0	0	0	1
Nashville	0	1	0		1	1	0	1
Alabama:								
Birmingham	0	2	3		3	0	2	5
Mobile	0	0	0		0	0	0	0
Montgomery	0	1	0			0	0	
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith	0	0	0			0	0	
Little Rock		0						
Louisiana:								
New Orleans	0	6	3	2	2	0	0	7
Shreveport	0	0	1		0	0	0	0
Oklahoma:								
Muskogee	0		2		0	0	0	0
Texas:								
Dallas	0	4	26		0	0	0	1
Fort Worth	0	1	2		1	0	0	1
Galveston	0	0	0		0	0	0	2
Houston	0	3	1		0	0	0	3
San Antonio	0	2	2		2	0	0	5
MOUNTAIN								
Montana:								
Billings	0	0	0		0	0	0	0
Great Falls	0	1	0		0	0	0	0
Helena	0	0	0		0	0	0	0
Missoula	0	0	0		0	1	0	0
Idaho:								
Boise	0	0	0		0	0	0	0
Colorado:								
Denver	3	6	5		0	3	3	0
Pueblo	1	1	0		0	0	0	0
New Mexico:								
Albuquerque	0	0	0		0	0	0	0
Utah:								
Salt Lake City	3	1	0	1	0	1	3	3
Nevada:								
Reno	0	0	0		0	0	0	0
PACIFIC								
Washington:								
Seattle	4	2	1			0	1	
Spokane	3	1	0			0	0	
Tacoma	1	0	0		0	1	0	0
Oregon:								
Portland	0	2	3		0	3	0	0
California:								
Los Angeles	3	16	15	74	2	3	7	10
Sacramento	0	0	0		0	0	2	5
San Francisco	6	4	1	15	0	2	4	6

City reports for week ended August 27, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	0	5	0	0	0	0	0	2	1	5	19
New Hampshire:											
Concord	0	0	0	0	0	0	0	0	0	0	7
Vermont:											
Barre	0	0	0	0	0	1	0	0	0	0	4
Burlington	0	1	0	0	0	0	0	0	0	0	7
Massachusetts:											
Boston	14	24	0	0	0	14	2	3	0	30	171
Fall River	1	3	0	0	0	0	0	1	0	0	21
Springfield	1	3	0	0	0	1	1	0	0	1	33
Worcester	2	6	0	0	0	2	1	0	0	6	42
Rhode Island:											
Pawtucket	0	0	0	0	0	0	0	0	0	0	13
Providence	2	7	0	0	0	5	1	0	0	49	58
Connecticut:											
Bridgeport	1	5	0	0	0	3	1	0	0	2	5
Hartford	1	0	0	0	0	2	0	0	0	0	26
New Haven	1	0	0	0	0	1	1	0	0	8	33
MIDDLE ATLANTIC											
New York:											
Buffalo	5	6	0	0	0	6	1	0	0	20	101
New York	19	20	0	0	0	91	34	43	2	134	1,175
Rochester	2	3	0	0	0	1	0	0	0	4	65
Syracuse	1	5	0	0	0	0	0	0	0	32	37
New Jersey:											
Camden	0	1	0	0	0	1	1	0	0	1	28
Newark	3	5	0	0	0	8	1	0	1	23	71
Trenton	1	0	0	0	0	2	1	0	0	3	27
Pennsylvania:											
Philadelphia	14	15	1	0	0	32	6	10	4	30	366
Pittsburgh	6	10	0	0	0	4	2	0	1	10	156
Reading	0	0	0	0	0	2	1	0	0	3	27
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	4	3	0	0	0	2	2	1	0	1	98
Cleveland	9	17	0	0	0	12	3	3	0	55	154
Columbus	2	2	0	0	0	4	0	2	0	4	66
Toledo	2	4	0	0	0	6	3	0	0	9	57
Indiana:											
Fort Wayne	0	1	0	0	0	0	2	0	0	0	19
Indianapolis	2	1	0	0	0	3	0	2	1	5	-------
South Bend	1	1	0	0	0	0	0	0	0	0	17
Terre Haute	0	0	0	0	0	1	0	0	0	0	15
Illinois:											
Chicago	24	34	0	0	0	34	5	6	0	67	560
Springfield	0	2	0	0	0	0	0	5	0	0	18
Michigan:											
Detroit	17	19	0	0	0	20	4	3	0	106	243
Flint	3	3	0	0	0	1	0	0	0	16	22
Grand Rapids	3	1	0	0	0	0	1	0	0	18	20
Wisconsin:											
Kenosha	0	0	0	0	0	0	0	0	0	11	4
Madison	1	1	0	0	-------	-------	0	0	-------	3	-------
Milwaukee	5	8	0	0	0	3	0	0	0	53	93
Racine	0	0	0	0	0	0	0	0	0	5	9
Superior	0	0		0	0	0	0	1	0	0	9
WEST NORTH CENTRAL											
Minnesota:											
Duluth	4	2	0	0	0	0	0	0	0	1	30
Minneapolis	8	1	0	0	0	3	1	2	0	6	67
St. Paul	5	1	0	0	0	4	0	2	0	20	51
Iowa:											
Des Moines	2	2	1	0	-------	-------	0	0	-------	2	40
Sioux City	0	-------	0	-------	-------	-------	0	-------	-------	-------	-------
Waterloo	0	0	0	0	-------	-------	0	0	-------	4	-------

City reports for week ended August 27, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL—contd.											
Missouri:											
Kansas City	2	3	0	0	0	8	2	1	0	13	76
St. Joseph	0	0	0	0	0	0	0	0	0	0	23
St. Louis	9	4	0	0	0	6	6	2	2	13	187
North Dakota:											
Fargo	0	0	0	0	0	0	0	1	0	2	5
Grand Forks	0	0	0	0			0	0		0	
South Dakota:											
Sioux Falls	0	0	0	0			0	0		0	7
Nebraska:											
Omaha	1	6	1	0	0	1	0	1	0	2	48
Kansas.											
Topeka	1	1	0	0	0	0	1	0	0	3	3
Wichita	1	0	0	0	0	3	0	3	0	6	21
SOUTH ATLANTIC											
Delaware:											
Wilmington	0	3	0	0	0	1	0	0	0	1	2
Maryland											
Baltimore	4	9	0	0	0	13	8	5	1	19	165
Cumberland	0	0	0	0	0	1	0	0	0	1	11
Frederick	0	2	0	0	0	0	0	0	0	0	4
District of Col.:											
Washington	4	6	0	0	0	12	3	2	0	4	111
Virginia											
Lynchburg	0	1	0	0	0	1	2	2	0	20	14
Norfolk	1	2	0	0	0	1	1	0	0	2	28
Richmond	2	6	0	0	0	2	1	0	0	1	35
Roanoke	0	1	0	0	0	1	0	1	0	1	22
West Virginia:											
Charleston	0	1	0	0	0	1	3	4[1]	0	0	11
Huntington		3		0	0	0		1	0	0	
Wheeling	0	0	0	0	0	0	1	0	0	13	19
North Carolina											
Raleigh	0	0	0	0	0	0	1	0	0	0	15
Wilmington	0	0	0	0	0	1	0	0	0	0	9
Winston-Salem	1	0	0	0	0	1	1	0	0	2	9
South Carolina											
Charleston	0	2	0	0	0	0	2	3	0	0	20
Columbia	0	0	0	0	0	3	0	0	0	0	12
Georgia:											
Atlanta	3	4	0	0	0	3	4	10	1	6	69
Brunswick	0	0	0	0	0	1	0	1	0	0	3
Savannah	0	0	0	0	0	4	1	0	0	0	28
Florida:											
Miami	0	0	0	0	0	1	1	0	0	0	17
Tampa	0	0	0	0	0	2	0	1	0	0	16
EAST SOUTH CENTRAL											
Kentucky:											
Covington	0		0				1				
Lexington		0		0	0	0		7	0	0	14
Louisville		1		0	0	3		0	0	0	
Tennessee:											
Memphis	2	1	0	0	0	3	9	4	0	0	63
Nashville	0	1	0	0	0	1	6	0	0	3	35
Alabama:											
Birmingham	3	1	0	0	0	3	4	5	0	7	54
Mobile	0	0	0	0	0	0	0	1	0	0	19
Montgomery	0	1	0	0	0		0	0		0	
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	1	0	0			0	0		1	
Little Rock	0		0				1				

[1] 3 nonresidents.

City reports for week ended August 27, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST SOUTH CENTRAL—con.											
Louisiana:											
New Orleans	2	0	0	0	0	5	4	15	3	0	126
Shreveport	0	1	0	0	0	1	0	0	1	1	36
Oklahoma:											
Muskogee	0	0		0	0	0		4	0	0	
Texas:											
Dallas	2	0	1	0	0	2	2	2	0	2	40
Fort Worth	1	3	0	0	0	0	0	1	1	0	34
Galveston	0	0	0	0	0	0	0	1	0	0	18
Houston	1	0	0	0	0	4	1	1	0	0	67
San Antonio	1	0	0	0	0	2	1	0	0	0	52
MOUNTAIN											
Montana:											
Billings	0	0	0	0	0	0	0	0	0	0	
Great Falls	0	0	0	0	0	0	0	0	0	1	11
Helena	0	0	0	0	0	0	0	1	0	0	7
Missoula	0	0	0	0	0	0	0	0	0	0	6
Idaho:											
Boise	0	1	0	2	0	0	0	0	0	0	5
Colorado:											
Denver	2	7	0	0	0	7	1	2	0	15	66
Pueblo	0	0	0	0	0	1	0	2	0	6	12
New Mexico:											
Albuquerque	0	0	0	0	0	2	1	0	0	2	9
Utah:											
Salt Lake City	2	0	0	0	0	2	1	0	0	13	29
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	4
PACIFIC											
Washington:											
Seattle	4	2	1	2			2	1		0	
Spokane	2	0	1	0			1	2		3	
Tacoma	1	4	1	0	0	1	0	0	0	1	29
Oregon:											
Portland	2	1	3	1	0	3	0	1	0	3	54
California:											
Los Angeles	7	4	1	2	0	13	1	1	0	73	247
Sacramento	1	0	0	0	0	2	1	2	1	0	31
San Francisco	4	1	0	0	0	10	1	0	0	14	153

Division, State, and city	Meningococcus meningitis: Cases	Meningococcus meningitis: Deaths	Lethargic encephalitis: Cases	Lethargic encephalitis: Deaths	Pellagra: Cases	Pellagra: Deaths	Poliomyelitis (infantile paralysis): Cases, estimated expectancy	Poliomyelitis (infantile paralysis): Cases	Poliomyelitis (infantile paralysis): Deaths
NEW ENGLAND									
Massachusetts:									
Boston	1	0	0	0	0	0	4	0	0
Worcester	0	0	0	1	0	1	0	0	0
MIDDLE ATLANTIC									
New York:									
New York	4	2	0	0	0	0	16	11	3
New Jersey:									
Camden	0	0	0	0	0	0	0	5	0
Pennsylvania:									
Philadelphia	3	0	1	0	0	0	1	118	4
Reading	0	0	0	0	0	0	0	2	1

City reports for week ended, August 27, 1932—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cleveland	2	0	0	0	0	0	3	3	0
Indiana:									
Indianapolis	1	0	0	0	0	0	0	0	0
Terre Haute	1	1	0	0	0	0	0	0	0
Illinois:									
Chicago	0	1	0	1	0	0	3	1	0
Michigan:									
Detroit	1	1	0	0	0	0	2	1	0
Grand Rapids	0	0	0	0	0	0	0	1	0
Wisconsin:									
Milwaukee	1	1	0	0	0	0	1	1	0
WEST NORTH CENTRAL									
Minnesota:									
St. Paul	0	0	0	0	0	0	0	1	0
Missouri: [1]									
St. Louis	1	1	0	0	0	0	1	0	0
SOUTH ATLANTIC [1]									
Maryland:									
Baltimore	0	0	0	0	0	0	0	1	0
District of Columbia:									
Washington	0	0	0	0	0	0	1	1	0
North Carolina:									
Raleigh	0	0	0	0	3	0	0	0	0
South Carolina: [1]									
Charleston [1]	0	0	0	0	2	0	0	3	0
Georgia: [1]									
Atlanta	0	0	0	0	2	0	0	0	0
EAST SOUTH CENTRAL [1]									
Kentucky:									
Lexington	1	0	0	0	0	0	-------	0	0
Tennessee:									
Memphis	0	0	0	0	0	0	0	1	0
Nashville	0	2	0	0	0	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans [1]	0	0	0	0	0	0	0	1	0
Shreveport	0	0	0	0	1	1	0	0	0
Texas:									
Dallas	0	0	0	0	1	1	0	0	0
MOUNTAIN									
Utah:									
Salt Lake City	1	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	0	0	0	0	0	0	0	1	0
Oregon:									
Portland	0	0	0	0	0	0	0	2	0
California:									
Los Angeles	1	0	0	0	1	0	2	0	0
Sacramento	1	1	0	0	0	0	0	0	0
San Francisco	0	0	0	0	0	0	1	1	0

[1] Typhus fever, 10 cases: 1 case at St. Joseph, Mo.; 1 case at Charleston, S. C.; 1 case at Columbia, S. C.; 1 case at Savannah, Ga.; 2 cases at Tampa, Fla.; 2 cases at Birmingham, Ala.; and 2 cases at New Orleans, La.

134989°—32——4

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended August 20, 1932.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases for the week ended August 20, 1932, as shown in the following table. No report was received from Prince Edward Island.

Province	Cerebrospinal fever	Influenza	Poliomyelitis	Typhoid fever
Nova Scotia				[1] 2
New Brunswick				2
Quebec			29	26
Ontario	1	7	12	1
Manitoba				3
Saskatchewan				[1] 5
Alberta			2	3
British Columbia			1	1
Total	1	7	44	43

[1] Paratyphoid fever.

Quebec Province—Communicable diseases—Week ended August 20, 1932.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended August 20, 1932, as follows:

Disease	Cases	Disease	Cases
Chicken pox	5	Poliomyelitis	29
Diphtheria	15	Puerperal septicemia	2
Erysipelas	2	Scarlet fever	34
German measles	3	Tuberculosis	59
Measles	4	Typhoid fever	26
Ophthalmia neonatorum	2	Whooping cough	48

DENMARK

Communicable diseases—June, 1932.—During the month of June, 1932, cases of certain communicable diseases were reported in Denmark as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	7	Paratyphoid fever	62
Chicken pox	58	Poliomyelitis	3
Diphtheria and croup	144	Puerperal fever	9
Erysipelas	204	Scabies	538
German measles	7	Scarlet fever	202
Gonorrhea	883	Syphilis	61
Influenza	2,474	Typhoid fever	11
Lethargic encephalitis	19	Undulant fever (Bact. abort. Bang)	45
Measles	3,059	Whooping cough	3,580
Mumps	183		

ITALY

Communicable diseases—Four weeks ended March 6, 1932.—During the four weeks ended March 6, 1932, cases of certain communicable diseases were reported in Italy as follows:

Disease	Feb. 8-14		Feb. 15-21		Feb. 22-28		Feb. 29-Mar. 6	
	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected
Anthrax	13	12	14	14	10	10	17	12
Cerebrospinal meningitis	16	15	16	14	18	18	6	6
Chicken pox	256	97	433	102	333	110	224	82
Diphtheria and croup	454	269	564	300	450	255	397	236
Dysentery	5	5	5	5	3	3	2	2
Lethargic encephalitis	2	2	2	2			1	1
Measles	1,949	225	3,578	290	2,742	276	2,623	284
Poliomyelitis	9	6	10	6	5	5	7	7
Scarlet fever	303	123	416	136	311	118	311	124
Typhoid fever	236	123	288	161	172	111	217	122

JAMAICA

Communicable diseases—Four weeks ended August 13, 1932.—During the four weeks ended August 13, 1932, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the Island of Jamaica, outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Cerebrospinal meningitis	1		Leprosy		1
Chicken pox	4	5	Puerperal fever	1	1
Dysentery	4	5	Tuberculosis	32	75
Erysipelas		3	Typhoid fever	12	47

PUERTO RICO

San Juan—Communicable diseases—Four weeks ended August 13, 1932.—During the four weeks ended August 13, 1932, cases of certain communicable diseases were reported in San Juan, P. R., as follows:

Disease	Cases	Disease	Cases
Broncho-pneumonia	2	Measles	55
Chicken pox	17	Mumps	6
Diphtheria	6	Pellagra	1
Impetigo contagiosa	1	Syphilis	5
Influenza	359	Tuberculosis	31
Leprosy	1	Whooping cough	8
Malaria	59		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of the quarantinable diseases appears in the Public Health Reports for August 26, 1932, pp. 1798–1811. A similar cumulative table will appear in the Public Health Reports to be issued September 30, 1932, and thereafter, at least for the time being, in the last issue (published on the last Friday) of each month.)

Cholera

China.—Amoy, two weeks ended August 27, 1932, 133 cases, 35 deaths. Hankow, week ended August 13, 1932, 109 cases, 13 deaths. Macao, two weeks ended August 27, 1932, 24 cases, 24 deaths. Nanking, week ended August 20, 1932, 169 cases, 14 deaths. Shanghai, week ended August 20, 1932, 347 cases, 28 deaths. Swatow, week ended August 20, 1932, 48 cases, 11 deaths. Tientsin, week ended August 13, 1932, 2 cases.

Cholera has been reported from southern Manchuria, with 700 deaths in Tungliao, 136 deaths in Pei-chen, 35 deaths in Chinchow Prefecture (Chinhsien), 41 deaths at Changchun, 22 deaths at Chengchiatun, 14 deaths at Newchwang, 4 deaths at Mukden, 1 death at Antung, and scattered reports from other places. The report did not include deaths which occurred later than August 1, 1932.

Philippine Islands.—From August 22 to September 3, 1932, 10 cases of cholera with 5 deaths were reported in Leyte Province, P. I. From August 30 to September 3, 1932, 21 cases and 11 deaths were reported in Samar Province.

Plague

The steamship *City of Oxford* arrived at Liverpool September 2, 1932, from Alexandria, Egypt. Two dead rats on the vessel were found to be plague infected.

x

UNITED STATES TREASURY DEPARTMENT

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HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

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They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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CONTENTS

PUBLIC HEALTH REPORTS

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DO CHILDREN WHO DRINK RAW MILK THRIVE BETTER THAN CHILDREN WHO DRINK HEATED MILK? [1]

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INTRODUCTION

There is no more vexing question confronting American parents and American health authorities than the following: Shall milk be heated before it is consumed? Most health authorities believe and teach that any milk supply, regardless of how carefully it has been produced, would be made still safer by heating it hot enough and long enough to devitalize any pathogens which might have accidentally found their way into it despite the care taken in producing it.

Partly as a result of this teaching there has been a rapid increase in the percentage of milk pasteurized in the United States during the past 30 years. From the beginning of the twentieth century to the present time the percentage of milk pasteurized in American cities of 10,000 population and over has increased from a negligible figure to the impressive one of 87.5 per cent.[2]

During the past several years, however, raw milk advocates have vigorously contended that heating milk adversely affects its healthfulness and growth-promoting capacity. In support of this claim repeated reference has been made to experiments conducted at Ohio State University [3] and at the British National Institute for Research in Dairying,[4] from which the conclusion is drawn that white rats which are fed upon heated milk will not grow as well as white rats fed upon raw milk. Raw milk advocates have used this material in publicity campaigns in many parts of the United States. They have insisted that these experiments upon white rats justify the conclusion that children will not thrive as well upon heated as upon raw milk.

Now it will immediately be apparent that, even if it were true that white rats do not grow as well upon heated milk as upon raw

[1] Presented at the Conference of State and Territorial Health Officers, Washington, D. C., June 6, 1932.

[2] The extent of pasteurization and tuberculin testing in American cities of 10,000 population and over. By Leslie C. Frank and Frederic J. Moss. (Mimeographed publication issued by U. S. Public Health Service, 1932.)

[3] Ohio tests prove natural milk is best. By Ernest Scott, M. D., and Lowell A. Erf. (Jersey Bulletin and Dairy World, Feb. 11, 1931.)

[4] Relative value of raw and heated milk in nutrition. By Mattick and Golding. Lancet, Mar. 21, 1931.

milk—and even if it necessarily followed (which it does not) that children who were fed nothing but heated milk would not grow as well as children who were fed nothing but raw milk—the fact would still remain that except for a period of a few weeks American children do not live exclusively upon milk. They are given a supplementary diet very soon after weaning, and the effect of heating the milk used in the diet, if such effect exists, might be so small as to disappear in the combined effect of the complete child diet. If this can be demonstrated it is not conceivable that any physician or parent would still consider the very real milk-borne disease menace of raw milk to be offset by any significant dietary disadvantage of heated milk.

Nevertheless, intensive campaigns have been conducted by raw milk advocates in the form of leaflet distribution, newspaper advertisements, and radio programs. There seems indeed to be real danger that milk consumers in the United States may be more impressed by the arguments of raw milk advocates that heated milk is not as wholesome as raw milk, than by the advice of health authorities that raw milk is not as safe as heated milk.

If this is true it becomes imperative for health officers to be able to answer the question, "Do children who drink raw milk actually thrive better than children who drink heated milk?", not by theoretical reasoning only, but on the basis of field observation.

It was therefore decided to make an extensive field study on the basis of the accompanying survey form in the hope that from such data it would be possible to prepare age-weight and age-height curves for each of two large groups of children, one of which had consumed raw milk and the other heated milk, and thus determine from actual past experience whether heating milk really has a sufficiently adverse effect to reduce significantly the growth-promoting capacity of the average American child diet.

Accordingly, arrangements were made with the State health departments of Alabama, Mississippi, Florida, Georgia, North Carolina, Kentucky, Texas, Missouri, Oregon, and Washington to make surveys in the following-named cities:

Montgomery, Ala.	Graham, Mo.	Eugene, Oreg.
Mobile, Ala.	Platte City, Mo.	Central Point, Oreg.
Jacksonville, Fla.	Plattsburg, Mo.	Gold Hill, Oreg.
Atlanta, Ga.	De Kalb, Mo.	Jacksonville, Oreg.
Jackson, Miss.	Durham, N. C.	Talent, Oreg.
Louisville, Ky.	Winston-Salem, N. C.	Phoenix, Oreg.
Lexington, Ky.	Greensboro, N. C.	Ashland, Oreg.
St. Matthews, Ky.	Chapel Hill, N. C.	Eagle Point, Oreg.
Jefferson City, Mo.	Morrisville, N. C.	Houston, Tex.
St. Joseph, Mo.	Rougemont, N. C.	Austin, Tex.
Webster Groves, Mo.	Bahama, N. C.	Dallas, Tex.
Cosby, Mo.	Creedmoor, N. C.	Seattle, Wash.
Dearborn, Mo.	Medford, Oreg.	Walla Walla, Wash.

UNITED STATES PUBLIC HEALTH SERVICE

OFFICE OF MILK INVESTIGATIONS CHILD HEALTH SURVEY (UNDER 6)

Name of child____________________ Parent or guardian__________________

Address: No_____ Street_______________ City_____________ State_______

Age: ____ Yrs. ____ Mo____. Weight: ____ lbs. ____ oz. Height: ______ in.

Date of birth___________ No. in family____________ No. rooms___________

Nationality of ancestors____________________

DIET

Baby was fed—

(Breast milk from_____ (Age) to____ (Age)); (cooked milk from_____ (Age) to_____ (Age));

(raw milk not cooked at home from_____ (Age) to_____ (Age));

(pasteurized milk not cooked at home from_____ (Age) to_____ (Age));

(milk powder from_____ (Age) to____ (Age)); (evaporated unsweetened from____ (Age) to____ (Age));

(condensed sweetened from_____ (Age) to_____ (Age)); (cereals from_____ (Age) to_____ (Age));

(fruits or fruit juices from____ (Age) to____ (Age)); (vegetable or juices from____ (Age) to____ (Age));

(fresh meats from_____ (Age) to_____ (Age)); (eggs from_____ (Age) to_____ (Age));

(potatoes from_____ (Age) to_____ (Age)); (candies or sirups from ____ (Age) to ____ (Age));

(cod-liver oil from____ (Age) to____ (Age)).

Does child like milk?_________________ Give grade of milk_________________

HEALTH HISTORY

Is child well at present?_________________ If not, state nature of ailment____ ___________ Has child had following illnesses: Diphtheria______________ Scarlet fever_______________ Diarrhea_______________ Dysentery______________

Flux_______________ Colitis______________ Summer complaint______________

Typhoid fever_______________ Scurvey______________ Rickets______________

Date_______________________

____
(Name of investigator)

____
(Title)

It was obviously desirable to standardize the method of securing the information, and, accordingly, the senior author standardized the survey methods of the junior authors and these in turn visited the various cities and standardized the survey methods of the city personnel.

The children were weighed with outer garments removed, but with few exceptions the undergarments were kept on, since most of the survey work was done during cold weather and considerable difficulty would have been encountered in securing complete undressing. Account of this fact should be taken in comparing the curves with age-weight curves for completely undressed children.

When the questionnaires were tabulated it was found that there were a few instances in which the weight but not the height was

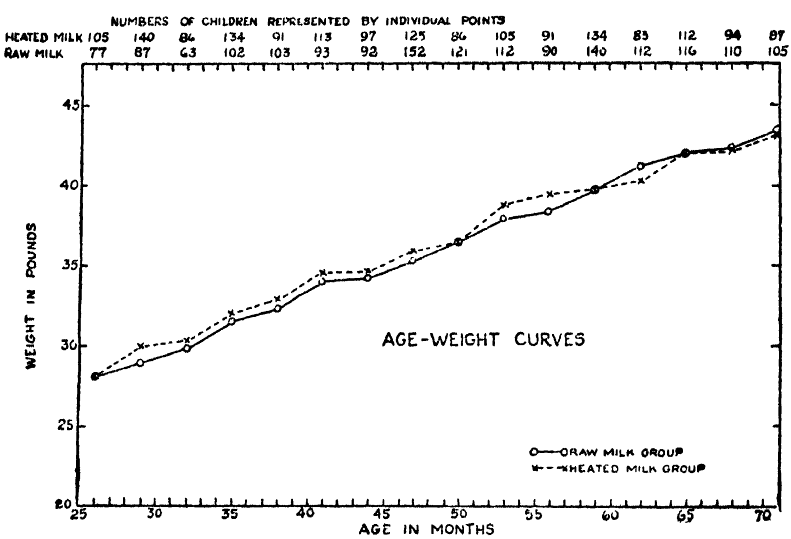

FIGURE 1.—Effect of heated and raw milks upon child growth

given, and a few other instances in which the height but not the weight was given. Altogether it was possible to plot age-weight curves for 3,358 children, and age-height curves for 3,319 children of 2 to 6 years of age. An insufficient number of returns were available at this time for children under 2.

A study of the returns soon indicated that the number of children who had received no heated milk whatever was practically negligible. Therefore it was decided to place in the raw-milk group those children who had received raw milk for more than half of their lives, including the latter half, and to place in the heated-milk group those children who had received heated milk for more than half of their lives, including the latter half.

Figures 1 and 2 give the age-weight and age-height curves for the two groups. It is evident that what little difference there is, is in favor of the heated-milk group. The average weight of the children receiving raw milk is 36.0 pounds, as compared with 36.3 pounds for the heated-milk group. There is practically no difference in the average heights.

The difference in weight, even though small, was rather puzzling, since there seemed to be no sound reason why children who drink heated milk should actually weigh even slightly more than children who drink raw milk. It should be noted here that the average weight and average height figures were determined by obtaining the individual averages for each of the 3-months age groups, and then averaging these averages. This avoided any error which might otherwise have

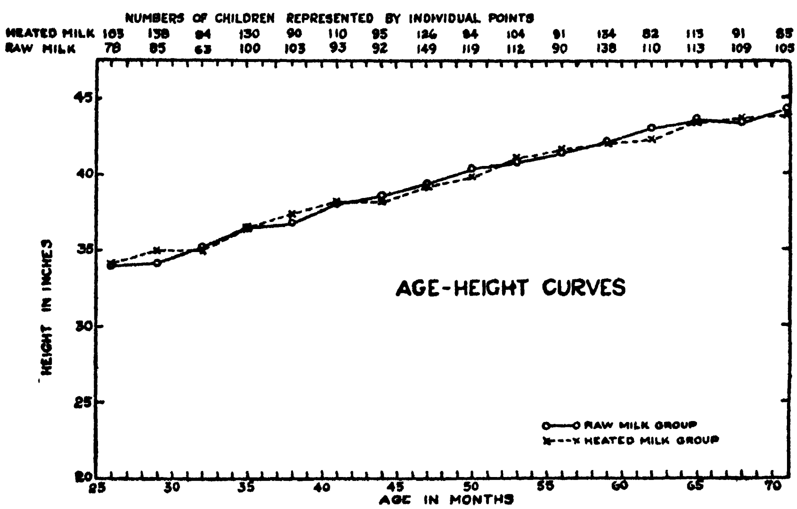

FIGURE 2.—Effect of heated and raw milks upon child growth

resulted from the somewhat unequal age distribution in the two groups.

It might be objected that the children in the heated-milk group had received some raw milk in the first half of their lives, and that this might have affected their growth. Hence, it was believed that it might be helpful to group the children somewhat differently, namely, to place in the raw-milk group those children who had received raw milk for more than half of their lives, including at least the latter half, and to place in the heated-milk group those children who had received no milk whatever other than heated milk. Under heated milk was included pasteurized milk, boiled milk, evaporated milk, and milk powder. Children receiving any sweetened condensed milk were excluded from the heated-milk group, as it has been held that such children tend to be abnormally heavy.

Figure 3 gives the age-weight curves and Figure 4 gives the age-height curves for these two groups of children, which had by this time been augmented by additional returns for children under 2. It

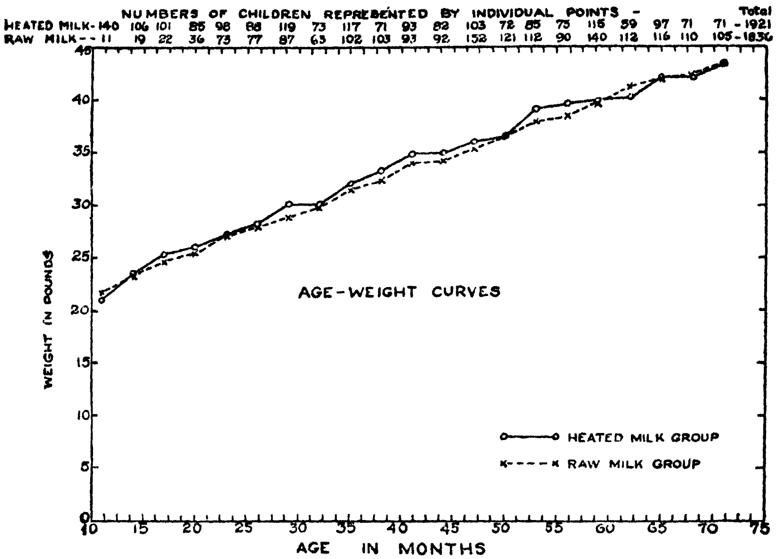

FIGURE 3.—Effect of heated and raw milks upon child growth

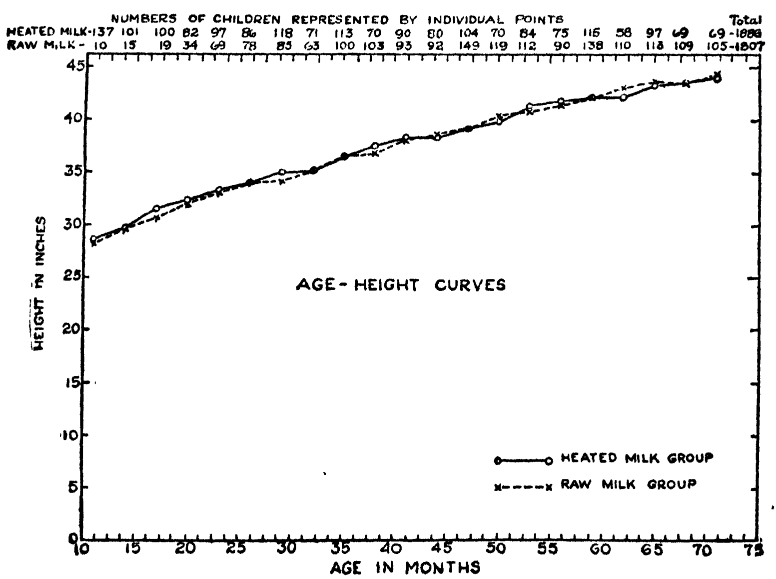

FIGURE 4.—Effect of heated and raw milks upon child growth

is evident that over a considerable part of the age-weight curve the 1,921 children representing the heated-milk group still show a slightly greater average weight than the 1,836 children representing the raw-

milk group. The average weight of the children receiving raw milk is 33.2 pounds, whereas the average weight of the children receiving heated milk is 33.6 pounds, a difference of 1.2 per cent.

The average height of the 1,807 children receiving raw milk is 37.4 inches, whereas the average height of the 1,886 children receiving heated milk is 37.5 inches, a difference of less than three-tenths of 1 per cent.

An attempt was made to study the various factors other than kind of milk fed which might have influenced the weight or height, in order to make sure that there was not some essential weight and height affecting difference, other than milk, between the two groups of children, and in order to find some explanation, if possible, of the slight but persistent excess in weight in favor of the heated-milk group. The factors studied were race, financial status, and supplementary foods in the diet.

RACE

The two groups of children were divided into three major race groups, namely, Anglo-Saxon, Latin, and miscellaneous. Table 1 gives the distribution found:

TABLE 1.—*Race distribution of children*

Race	Children receiving predominantly raw milk	Children receiving heated milk only
	Per cent	*Per cent*
Anglo-Saxon	96	91
Latin	2	5
Miscellaneous	2	4

From these figures it seems proper to conclude that the age-weight and age-height curves were not significantly affected by the race distribution in the two groups of children.

FINANCIAL STATUS

The attempt to represent financial status was limited to the determination of the average number of persons per room in the households of each group. The results of this study showed that in the homes of the children receiving heated milk there were on the average 1.01 persons per room, and that in the homes of the children receiving predominantly raw milk there were on the average 1.08 persons per room. This slight difference is not believed to be significant.

SUPPLEMENTARY FOODS

Figure 5 shows the average percentage of the lives of the children in each group during which various supplementary foods were included in the diet. It will be observed that the differences are negligible except in the case of cod-liver oil. The children receiving heated milk only received cod-liver oil during an average of 41.6 per cent of their lives, whereas the children receiving predominantly raw milk received cod-liver oil during an average of 27.6 per cent of their lives. This was a very interesting finding and it was considered possible that the extra amount of cod-liver oil given the heated-milk group might have resulted in neutralizing any ill effect from heating

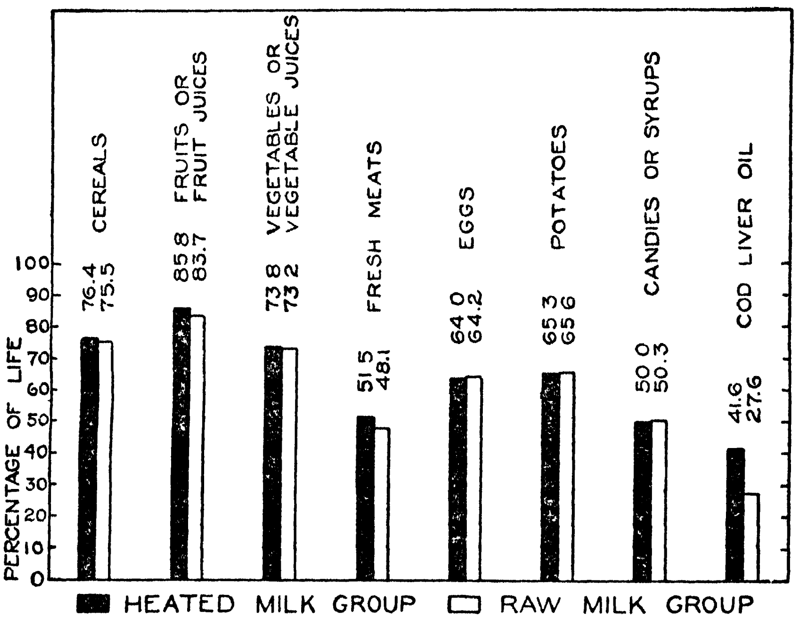

FIGURE 5. -Supplementary foods

the milk, or might at least explain the slightly greater weight of the heated-milk group. In order to investigate these possibilities it was decided to regroup the children receiving heated milk on the basis of cod-liver oil intake. This part of the study was limited to those children who had received cod-liver oil for more than half their lives, as one group, and to those who had received no cod-liver oil at all, as another. The results of the study showed that the average weight of the 794 children who received cod-liver oil during more than half of their lives was 33.8 pounds, whereas the average weight of the 636 children who received no cod-liver oil was 33.5 pounds. This indicates that even if the heated-milk group of children had received no

cod-liver oil whatever its age-weight curve would at most have been only one-tenth pound below its former position, i. e., still very slightly above the raw-milk curve.

INCIDENCE OF MILK-BORNE KINDS OF DISEASE

For this part of the study survey sheets were available for 3,637 children.

There were 32 cases of diphtheria reported by the parents among the 1,875 children who received heated milk only, as compared with 40 cases of diphtheria among the 1,762 children receiving predominantly raw milk, or case rates of 17.1 and 22.7 per thousand, respectively.

The number of scarlet fever cases reported by the heated-milk group was 43 as compared with 73 for the raw-milk group, or case rates of 23.0 and 41.4 per thousand, respectively.

The number of cases of intestinal disturbances (reported under various names such as diarrhea, dysentery, flux, colitis, and summer complaint) was 426 for the heated-milk group and 491 for the raw-milk group, or case rates of 227.0 and 278.0 per thousand, respectively. If we exclude diarrhea, which probably includes many very mild cases not referable to milk, the number of cases was 208 for the heated-milk group and 345 for the raw-milk group, or case rates of 111.0 and 196.0 per thousand, respectively.

Three cases of typhoid fever were reported for each group.

Only three cases of scurvy were reported, two for the heated-milk group and one for the raw-milk group.

Fifty-nine cases of rickets were reported for the heated-milk group and 90 cases for the raw-milk group, or case rates of 31.5 and 51.1 per thousand, respectively. Here again was an unexpected finding; this is probably related to the increased cod-liver oil intake of the heated-milk group.

SUMMARY

The foregoing studies of over 3,700 children are summarized as follows for children of 10 months to 6 years of age:

(1) There is no significant difference between the average weight of children who have received no milk except heated milk, and the average weight of children who have received raw milk for more than the latter half of their lives, the respective weights being 33.6 and 33.2 pounds, the insignificant difference being in favor of the children receiving heated milk.

(2) There is no significant difference between the average height of children who have received no milk except heated milk, and the average height of children who have received raw milk for more than the latter half of their lives, the respective heights being 37.5 and 37.4 inches, the insignificant difference being in favor of the children receiving heated milk.

(3) There was no significant difference between the two groups of children from the standpoint of the relative percentage of life during which various supplementary foods were included in the diet, except in the case of cod-liver oil, which was included during an average of 41.6 per cent of the lives of the children receiving heated milk, and an average of only 27.6 per cent of the lives of the children receiving raw milk.

(4) This difference in the percentage of life during which cod-liver oil was fed did not, however, affect the relative positions of the two age-weight curves significantly, since the average weight of the 636 children in the heated-milk group who received no cod-liver oil at all was 33.5 pounds, as compared with 33.8 pounds for the 794 children in the heated-milk group who received cod-liver oil during more than half of their lives.

(5) The parents of the children receiving predominantly raw milk reported a higher incidence of diphtheria, scarlet fever, intestinal disturbances, and rickets than did the parents of the children receiving heated milk only.

CONCLUSION

The growth-promoting capacity of heated milk plus the supplementary diet received by the average American child of 10 months to 6 years is not measurably less than the growth-promoting capacity of raw milk plus the supplementary diet received by the average American child of 10 months to 6 years.

ACKNOWLEDGMENTS

It is desired to acknowledge with appreciation the considerable effort so generously contributed by the various State and city health officers, by the nurses and other survey personnel, and by Mrs. Ruth Reinsmith, Miss Irene Shuman, Mrs. Rose Cohen, and Mrs. Evelyn Thompson in connection with the arduous task of tabulating and computing the statistical material.

DEATHS DURING WEEK ENDED SEPTEMBER 3, 1932

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Sept. 3, 1932	Corresponding week, 1931
Data from industrial-insurance companies:		
Policies in force	70, 963, 568	74, 961, 597
Number of death claims	11, 026	11, 715
Death claims per 1,000 policies in force, annual rate	8.1	8.1
Death claims per 1,000 policies, first 35 weeks of year, annual rate	9.8	10.0
Data from 85 large cities of the United States:		
Total deaths	6, 924	6, 741
Deaths per 1,000 population, annual basis	9.9	9.8
Deaths under 1 year of age	584	598
Deaths under 1 year of age per 1,000 estimated live births [1]	48	46
Deaths per 1,000 population, annual basis, first 35 weeks of year	11.4	12.2

[1] 1932, 81 cities; 1931, 77 cities.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended September 10, 1932, and September 12, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended September 10, 1932, and September 12, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Sept. 10, 1932	Week ended Sept. 12, 1931	Week ended Sept. 10, 1932	Week ended Sept. 12, 1931	Week ended Sept. 10, 1932	Week ended Sept. 12, 1931	Week ended Sept. 10, 1932	Week ended Sept. 12, 1931
New England States:								
Maine	------	3	------	------	7	9	0	0
New Hampshire	------	------	------	------	------	------	0	0
Vermont	------	1	------	------	------	4	0	0
Massachusetts	12	33	1	12	22	18	0	1
Rhode Island	2	------	------	1	2	6	0	0
Connecticut	1	8	------	3	3	2	1	0
Middle Atlantic States:								
New York	39	56	[1] 4	[1] 4	78	48	3	10
New Jersey	13	12	4	1	24	7	1	1
Pennsylvania	39	68	------	------	33	64	5	1
East North Central States								
Ohio	24	73	4	15	28	12	2	1
Indiana	38	15	13	13	4	6	2	1
Illinois	41	45	5	51	17	25	3	4
Michigan	6	15	------	------	16	7	1	2
Wisconsin	9	12	20	4	10	27	3	0
West North Central States:								
Minnesota	4	8	------	------	4	7	1	1
Iowa	3	5	------	------	1	2	0	1
Missouri	25	25	------	3	1	3	5	5
North Dakota	------	1	------	------	5	5	0	0
South Dakota	1	1	------	------	------	2	0	1
Nebraska	13	9	------	2	2	------	0	0
Kansas	14	11	1	2	5	5	1	0
South Atlantic States:								
Delaware	2	------	------	------	------	------	0	0
Maryland [2]	13	15	5	3	3	9	0	1
District of Columbia	1	7	------	------	1	1	0	2
Virginia [4]	30	------	------	------	7	------	3	------
West Virginia	27	13	3	9	10	6	0	1
North Carolina [3]	58	79	9	2	12	6	2	1
South Carolina	12	16	161	121	6	7	0	0
Georgia [5]	36	55	15	28	2	7	1	1
Florida [3]	9	5	------	1	1	2	0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended September 10, 1932, and September 12, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Sept. 10, 1932	Week ended Sept. 12, 1931	Week ended Sept. 10, 1932	Week ended Sept. 12, 1931	Week ended Sept. 10, 1932	Week ended Sept. 12, 1931	Week ended Sept. 10, 1932	Week ended Sept. 12, 1931
East South Central States:								
Kentucky	62	39				11	1	1
Tennessee	56	74	19	23	1	1	0	2
Alabama [3]	68	72	3	3	1	20	0	1
Mississippi	30	90					0	1
West South Central States:								
Arkansas	23	20			1	2	0	2
Louisiana	22	31	7	8	1	1	0	1
Oklahoma [4]	47	45	13	3	1	4	1	0
Texas [3]	71	21	41	1	2		0	0
Mountain States:								
Montana	1	8	2		29	6	0	0
Idaho		1					1	0
Wyoming					2	2	1	0
Colorado	3	5					0	0
New Mexico	7	2	3		1	1	1	1
Arizona		3	1	3	1	2	0	0
Utah [3]	1			2	1	1	0	0
Pacific States:								
Washington	3	3			5	2	1	2
Oregon [5]	2	1	3	7	4	5	0	0
California	26	29	81	15	25	39	1	3
Total	894	1,044	418	340	379	394	41	49

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Sept. 10, 1932	Week ended Sept. 12, 1931	Week ended Sept. 10, 1932	Week ended Sept. 12, 1931	Week ended Sept. 10, 1932	Week ended Sept. 12, 1931	Week ended Sept. 10, 1932	Week ended Sept. 12, 1931
New England States:								
Maine	1	2	2	4	0	0	5	3
New Hampshire	0	6	4	2	0	0	0	1
Vermont	0	12	4	1	0	1	0	0
Massachusetts	4	127	49	73	0	0	7	3
Rhode Island	2	21	6	12	0	0	0	2
Connecticut	2	92	11	3	0	0	2	7
Middle Atlantic States:								
New York	20	430	63	95	2	0	48	42
New Jersey	39	94	22	18	0	0	9	21
Pennsylvania	136	14	91	71	0	0	75	37
East North Central States:								
Ohio	2	23	145	172	9	4	85	67
Indiana	1	4	33	44	0	20	34	22
Illinois	8	39	57	94	0	7	44	23
Michigan	9	114	43	61	1	6	44	36
Wisconsin	1	83	17	19	0	1	10	4
West North Central States:								
Minnesota	9	48	17	24	0	1	1	7
Iowa	7	5	9	11	1	8	4	2
Missouri	1	2	22	6	0	3	35	29
North Dakota	2	5	4	0	0	1	6	
South Dakota	1	1	0	3	0	2	1	1
Nebraska	2	1	11	6	0	8	2	2
Kansas	0	1	35	16	0	0	14	8
South Atlantic States:								
Delaware	2	0	1	3	0	0	1	3
Maryland [3]	2	1	10	17	0	0	32	35
District of Columbia	3	0	5	5	0	0	2	5
Virginia [3]	5	2	44		0		52	
West Virginia	8	5	32	11	4	0	79	47

footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended September 10, 1932, and September 12, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Sept. 10, 1932	Week ended Sept. 12, 1931	Week ended Sept. 10, 1932	Week ended Sept. 12, 1931	Week ended Sept. 10, 1932	Week ended Sept. 12, 1931	Week ended Sept. 10, 1932	Week ended Sept. 12, 1931
South Atlantic States—Continued.								
North Carolina [3]	3	3	31	58	0	0	20	32
South Carolina	1	0	2	8	0	0	43	67
Georgia [3]	0	1	9	25	0	0	54	78
Florida [3]	0	0	3	0	0	0	5	0
East South Central States:								
Kentucky	2	1	62	35	1	0	65	56
Tennessee	1	5	31	25	1	1	48	87
Alabama [3]	0	4	45	45	0	0	24	39
Mississippi	0	1	9	25	0	3	22	37
West South Central States:								
Arkansas	0	0	13	17	0	1	47	37
Louisiana	0	0	4	10	0	3	21	61
Oklahoma [4]	0	0	16	17	0	5	56	51
Texas [3]	4	1	26	22	2	6	50	35
Mountain States:								
Montana	0	3	6	3	0	0	6	8
Idaho	0	0	2	2	0	1	0	1
Wyoming	0	0	7	1	0	1	0	5
Colorado	0	0	8	10	0	0	8	4
New Mexico	1	1	5	1	0	0	3	3
Arizona	0	0	4	3	0	0	1	3
Utah [2]	0	0	2	3	0	0	0	1
Pacific States:								
Washington	1	1	5	12	0	2	5	11
Oregon [5]	0	0	8	4	3	4	5	11
California	4	7	46	32	3	1	15	16
	281	1,160	1,081	1,129	27	85	1,090	1,050

[1] New York City only.
[2] Week ended Friday.
[3] Typhus fever, week ended Sept. 10, 1932, 37 cases: 2 cases in Virginia, 1 case in North Carolina, 10 cases in Georgia, 1 case in Florida, 20 cases in Alabama, and 3 cases in Texas.
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa.
[5] Rocky Mountain spotted fever, week ended Sept. 10, 1932, 1 case in Oregon.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
July, 1932										
Mississippi	2	49	345	4,891	20	743	2	18	5	248
August, 1932										
Arizona		8	4		9		2	7	0	19
Connecticut	3	18	2		76		4	52	0	10
District of Columbia		11	2		3		13	19	0	12
Florida		71	9	46	11	6	0	11	1	27
Iowa	1	28			4		8	35	16	35
Maine	1	5	1		18	1	6	30	0	19
North Dakota	3	8			21		7	12	10	15
Oregon		9	33	9	65		3	21	12	9
Pennsylvania	23	128		1	373		296	383	0	265
Tennessee	5	62	47	239	9	41	8	76	2	418
Vermont		4			38		1	25	0	0
Wyoming		3	1		22		2	14	2	1

July, 1932

	Cases
Mississippi:	
Chicken pox	238
Dengue	12
Dysentery (amebic)	43
Mumps	65
Ophthalmia neonatorum	8
Puerperal septicemia	19
Rabies in animals	2
Trachoma	3
Undulant fever	1
Whooping cough	521

August, 1932

	Cases
Actinomycosis:	
Connecticut	2
Chicken pox:	
Arizona	1
Connecticut	39
District of Columbia	10
Florida	2
Iowa	7
Maine	23
North Dakota	11
Oregon	49
Pennsylvania	191
Tennessee	5
Vermont	25
Wyoming	4
Conjunctivitis, infectious:	
Connecticut	7
Dengue:	
Florida	1
Dysentery:	
Florida	2
Oregon	3
Pennsylvania	2
Tennessee	25
German measles:	
Connecticut	4
Maine	11
Pennsylvania	8
Tennessee	1
Impetigo contagiosa:	
North Dakota	1
Oregon	26
Tennessee	17
Lethargic encephalitis:	
Connecticut	1
District of Columbia	1
North Dakota	4
Pennsylvania	2
Mumps:	
Connecticut	32
Florida	6
Iowa	14
Maine	9
North Dakota	2
Oregon	12
Pennsylvania	258
Tennessee	9
Vermont	100
Wyoming	3
Ophthalmia neonatorum:	
Connecticut	1
Pennsylvania	3
Tennessee	2
Paratyphoid fever:	
Connecticut	1
Oregon	3
Tennessee	5
Puerperal (septicemia):	
Pennsylvania	35
Rabies in animals:	
Connecticut	2
Rocky Mountain spotted or tick fever:	
District of Columbia	4
Wyoming	4
Scabies:	
Oregon	2
Tennessee	1
Septic sore throat.	
Connecticut	3
Iowa	1
Maine	1
Oregon	2
Wyoming	2
Tetanus:	
North Dakota	2
Pennsylvania	2
Tennessee	2
Trachoma:	
Arizona	12
Pennsylvania	2
Tennessee	13
Tularæmia:[1]	
Arizona	3
Florida	10
Oregon	3
Wyoming	13
Typhus fever:	
Maine	1
Undulant fever:	
Arizona	1
Connecticut	3
Iowa	15
Maine	1
Vincent's angina:	
Iowa	3
Maine	3
Oregon	3
Tennessee	7
Vincent's infection:	
North Dakota	9
Whooping cough:	
Arizona	25
Connecticut	286
District of Columbia	18
Florida	37
Iowa	53
Maine	42
North Dakota	47
Oregon	65
Pennsylvania	1,561
Tennessee	103
Vermont	30
Wyoming	15

[1] Later information from Wisconsin reports 1 case of tularæmia during the month of July, instead of 154 cases, as published in the Public Health Reports of Sept. 2, 1932, p. 1846.

WEEKLY REPORTS FROM CITIES

City reports for week ended September 3, 1932

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded, and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1923 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	1	0	0	--------	1	0	1	1
New Hampshire:								
Concord	0	0	0	--------	0	0	0	0
Manchester	0	0	0	--------	0	0	0	0
Nashua	0	0	0	--------	0	0	0	0
Vermont.								
Barre	1	0	0	--------	0	0	0	0
Burlington	0	0	0	--------	0	0	2	0
Massachusetts:								
Boston	3	12	6	--------	0	4	5	18
Fall River	1	1	0	--------	0	0	0	1
Springfield	0	0	0	--------	0	1	1	0
Worcester	1	2	1	--------	0	6	1	2
Rhode Island:								
Pawtucket	0	0	0	--------	0	0	0	0
Providence	2	2	0	--------	0	3	0	3
Connecticut:								
Bridgeport	0	2	1	--------	0	1	1	0
Hartford	0	1	0	--------	0	3	1	0
New Haven	1	0	0	--------	0	0	0	0
MIDDLE ATLANTIC								
New York:								
Buffalo	1	5	0	--------	0	1	0	11
New York	9	64	27	4	0	43	44	72
Rochester	1	2	0	--------	0	2	2	1
Syracuse	0	0	0	--------	0	0	0	1
New Jersey:								
Camden	0	1	4	--------	0	0	0	2
Newark	0	5	0	--------	0	5	6	0
Trenton	0	1	0	--------	0	1	0	0
Pennsylvania:								
Philadelphia	2	19	3	1	0	2	6	15
Pittsburgh	3	7	1	1	2	5	0	13
Reading	0	1	0	--------	0	0	0	1
Scranton	2	--------	2	--------	--------	0	0	--------
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	0	3	2	--------	0	0	1	3
Cleveland	10	12	1	--------	0	4	2	8
Columbus	0	2	1	--------	0	5	0	1
Toledo	0	2	0	1	1	2	2	2
Indiana:								
Fort Wayne	0	1	4	--------	0	0	0	1
Indianapolis	2	1	0	--------	0	1	1	5
South Bend	0	1	0	--------	0	0	0	0
Terre Haute	0	0	2	--------	0	4	0	0
Illinois:								
Chicago	10	44	12	1	0	7	5	23
Springfield	0	0	0	1	0	0	0	2

City reports for week ended September 3, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
EAST NORTH CENTRAL—continued								
Michigan:								
Detroit	7	22	4	1	0	10	4	7
Flint	0	1	0		0	2	0	0
Grand Rapids	1	0	0		0	0	2	0
Wisconsin:								
Kenosha	2	0	0		0	0	0	0
Madison	3	1	2			0	0	
Milwaukee	2	5	0		0	2	3	5
Racine	0	0	0		0	0	0	0
Superior	1	0	0		0	1	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth	0	0	0		0	0	0	1
Minneapolis	1	8	2		0	1	1	3
St. Paul	1	3	0	1	1	0	0	3
Iowa:								
Des Moines	1	0	1			0	0	
Sioux City	0	0	0			0	1	
Waterloo		0						
Missouri:								
Kansas City	0	1	1		0	1	0	1
St. Joseph	0	0	5		0	0	0	3
St. Louis	0	14	9			1	4	1
North Dakota:								
Fargo	0	0	0		0	0	0	0
Grand Forks	0	0	0			1	0	
South Dakota:								
Aberdeen	0	0	0			0	0	
Nebraska:								
Omaha	2	3	1		0	0	1	1
Kansas:								
Topeka	0	0	0		1	6	2	0
Wichita	0	0	0		0	0	0	1
SOUTH ATLANTIC								
Delaware:								
Wilmington	0	0	0		0	0	0	2
Maryland:								
Baltimore	1	10	1	1	1	2	6	7
Cumberland	0	0	0		0	0	0	0
Frederick	0	0	0		0	0	0	0
District of Columbia:								
Washington	2	7	2		0	0	0	4
Virginia:								
Lynchburg	0	0	0		0	1	0	0
Norfolk	0	0	0		0	0	0	3
Richmond	0	6	0		0	0	0	2
Roanoke	0	2	2		0	0	0	0
West Virginia:								
Charleston	0	1	0	1	0	0	0	0
Huntington	0		1		0	0	0	
Wheeling	2	0	0		0	1	0	0
North Carolina:								
Raleigh	0	1	0		0	1	0	2
Wilmington	1	1	0		0	0	0	0
Winston-Salem	0	2	1	1	0	6	0	0
South Carolina:								
Charleston	0	0	1	2	0	0	0	1
Columbia	0	0	0		0	0	0	1
Greenville	0	0	0		0	0	0	0
Georgia:								
Atlanta	0	4	2	1	0	0	0	6
Brunswick	0	0	0		0	0	0	0
Savannah	0	0	3		0	0	0	4
Florida:								
Miami	0	1	2		0	0	0	0
Tampa	0	0	9		0	0	0	0

City reports for week ended September 3, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL								
Kentucky:								
Covington	0	0	0		0	0	0	0
Lexington	0		0		0	0	0	0
Louisville	0		7	2	0	1	1	4
Tennessee:								
Memphis	0	1	2		0	0	0	2
Nashville	0	1	3		0	1	1	0
Alabama:								
Birmingham	0	3	1	1	0	0	1	5
Mobile	0	0	2		0	0	0	3
Montgomery	0	1	0			0	0	
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith	0	0	0			0	0	
Little Rock		0						
Louisiana:								
New Orleans	0	6	0	2	4	0	0	3
Shreveport	0	0	0		0	0	0	1
Oklahoma:								
Muskogee	0		0		0	0	0	0
Texas:								
Dallas	0	4	17		0	1	0	0
Fort Worth	0	2	2		0	0	0	1
Galveston	0	0	0		0	0	0	0
Houston	0	3	1		0	0	0	5
San Antonio	0	2	2		0	0	0	4
MOUNTAIN								
Montana:								
Billings	0	0	0		0	0	0	0
Great Falls	1	0	0		0	0	0	0
Helena	0	0	0		0	0	0	0
Missoula	0	0	0		0	0	0	1
Idaho:								
Boise	0	0	0		0	0	0	0
Colorado:								
Denver	0	6	1		0	2	3	1
Pueblo	1	0	0		0	0	0	0
New Mexico:								
Albuquerque	0	1	0		0	0	0	0
Utah:								
Salt Lake City		1						
Nevada:								
Reno	0	0	0		0	0	0	0
PACIFIC								
Washington:								
Seattle	4	2	0			0	3	
Spokane	2	0	1			3	0	
Tacoma	1	1	0		0	0	0	0
Oregon:								
Portland	2	3	2	4	0	1	1	2
Salem	0	0	0		0	0	0	1
California:								
Los Angeles	2	16	15	58	0	4	6	11
Sacramento	1	2	0		0	0	0	0
San Francisco	6	4	1	2	1	2	4	2

City reports for week ended September 3, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	0	0	0	0	0	1	1	0	0	2	31
New Hampshire:											
Concord	0	1	0	0	0	0	0	0	0	0	4
Manchester	0	0	0	0	0	0	0	0	0	0	23
Nashua	0	0	0	0	0	0	0	0	0	0	--------
Vermont:											
Barre	0	0	0	0	0	0	0	0	0	0	--------
Burlington	0	0	0	0	0	0	0	0	0	2	8
Massachusetts:											
Boston	14	18	0	0	0	9	2	3	0	33	175
Fall River	1	3	0	0	0	1	0	0	0	1	19
Springfield	1	1	0	0	0	1	0	0	0	2	28
Worcester	3	2	0	0	0	2	0	1	0	5	36
Rhode Island:											
Pawtucket	0	0	0	0	0	0	0	0	0	0	--------
Providence	2	2	0	0	0	5	2	0	0	12	71
Connecticut:											
Bridgeport	1	2	0	0	0	1	0	0	0	6	20
Hartford	1	0	0	0	0	1	0	0	0	0	43
New Haven	1	0	0	0	0	0	1	0	0	5	29
MIDDLE ATLANTIC											
New York:											
Buffalo	5	7	0	0	0	1	0	0	0	32	128
New York	19	32	0	0	0	83	37	32	4	113	1,207
Rochester	2	7	0	0	0	0	1	0	0	1	66
Syracuse	1	0	0	0	0	0	1	0	0	34	40
New Jersey:											
Camden	0	2	0	0	0	0	0	2	0	0	29
Newark	3	1	0	0	0	10	1	1	0	14	82
Trenton	2	0	0	0	0	2	0	1	0	6	31
Pennsylvania:											
Philadelphia	15	20	0	0	0	19	8	7	0	15	388
Pittsburgh	6	10	0	0	0	5	2	1	0	37	39
Reading	0	2	0	0	0	0	0	0	0	4	26
Scranton	-----	1	-------	0	0	0	-------	0	0	3	--------
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	4	5	0	0	0	6	3	2	1	0	115
Cleveland	9	20	0	0	0	15	3	1	0	38	1
Columbus	2	6	0	0	0	2	0	0	0	2	[illegible]
Toledo	3	5	0	0	0	5	2	2	0	11	53
Indiana:											
Fort Wayne	1	0	0	0	0	0	1	0	0	0	21
Indianapolis	2	5	0	0	0	0	1	3	1	5	--------
South Bend	1	2	0	0	0	0	0	0	0	1	12
Terre Haute	0	0	0	0	0	0	0	1	0	0	12
Illinois:											
Chicago	25	37	0	0	0	26	6	4	0	71	572
Springfield	0	0	0	0	0	0	0	1	0	0	20
Michigan:											
Detroit	19	7	0	0	0	12	4	0	0	72	215
Flint	4	1	0	0	0	1	0	1	0	3	14
Grand Rapids	3	0	0	0	0	0	0	1	0	8	31
Wisconsin:											
Kenosha	0	0	0	0	0	0	0	0	0	11	5
Madison	0	1	1	0	-------	-------	-------	1	-------	7	--------
Milwaukee	6	3	0	0	0	5	1	0	0	42	87
Racine	1	0	0	0	0	1	0	0	0	6	14
Superior	0	0	0	0	0	0	0	0	0	0	5
WEST NORTH CENTRAL											
Minnesota:											
Duluth	4	0	0	0	0	0	0	0	0	0	20
Minneapolis	9	3	0	0	0	3	1	0	0	2	88
St. Paul	5	3	0	0	0	3	1	1	0	15	46

City reports for week ended September 3, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL—contd.											
Iowa:											
Des Moines	2	4	0	0			0	0		0	26
Sioux City	0	1	0	0			0	0		0	
Waterloo	0		0				0				
Missouri:											
Kansas City	3	2	0	0	0	6	1	2	1	1	8
St. Joseph	0	2	0	0	0	1	0	2	0	2	27
St. Louis	10	8	0	0	0	6	7	6	2	1	177
North Dakota:											
Fargo	1	0	0	0	0	0	0	0	0	1	3
Grand Forks	1	0	0	0			0	0		0	
South Dakota:											
Aberdeen	1	0	0	0			0	1		3	
Nebraska:											
Omaha	1	2	0	0	0	2	0	1	0	1	56
Kansas:											
Topeka	1	6	0	0	0	0	0	1	0	0	16
Wichita	0	0	0	0	0	1	2	1	0	2	27
SOUTH ATLANTIC											
Delaware:											
Wilmington	0	0	0	0	0	0	1	0	0	0	21
Maryland:											
Baltimore	4	14	0	0	0	12	8	1	0	28	204
Cumberland	0	1	0	0	0	0	1	0	0	1	12
Frederick	0	0	0	0	0	0	1	0	0	0	1
District of Col.:											
Washington	5	6	0	0	0	15	4	6	1	2	182
Virginia:											
Lynchburg	0	2	0	0	0	1	1	1	1	8	12
Norfolk	0	1	0	0	0	1	2	0	0	1	33
Richmond	3	9	0	0	0	5	3	2	0	0	52
Roanoke	1	0	0	0	0	0	0	1	0	1	16
West Virginia:											
Charleston	1	1	0	0	0	2	1	3	[1] 2	0	14
Huntington		1		0				0		0	
Wheeling	1	0	0	0	0	0	1	0	0	1	13
North Carolina:											
Raleigh	0	0	0	0	0	0	0	0	0	1	14
Wilmington	0	0	0	0	0	0	0	0	0	2	11
Winston-Salem	1	1	0	0	0	0	1	0	0	5	14
South Carolina:											
Charleston	0	2	0	0	0	2	2	3	0	0	20
Columbia	0	0	0	0	0	0	1	0	0	0	1
Greenville		0		0	0	0		0	0	1	
Georgia:											
Atlanta	3	1	0	0	0	2	4	8	1	3	67
Brunswick	0	0	0	0	0	0	0	0	0	0	2
Savannah	0	0	0	0	0	0	1	4	0	1	28
Florida:											
Miami	0	0	0	0	0	5	1	0	0	0	20
Tampa	1	1	0	0	0	0	1	0	0	0	11
EAST SOUTH CENTRAL											
Kentucky:											
Covington	1	2	0	0	0	0	0	0	0	0	15
Lexington		4		0	0	0		5	0	0	15
Louisville		3		0	0	1		0	1	8	67
Tennessee:											
Memphis	2	1	0	0	0	5	8	1	2	0	82
Nashville	1	0	0	0	0	7	6	1	1	1	47
Alabama:											
Birmingham	3	5	0	0	0	5	4	4	0	1	60
Mobile	0	3	0	0	0	0	1	0	0	0	24
Montgomery	0	1	0	0			0	2		0	

[1] Nonresidents.

City reports for week ended September 3, 1932—**Continued**

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	1	0	0			0	0		0	
Little Rock	0		0				1				
Louisiana:											
New Orleans	2	2	0	0	0	9	4	5	0	1	127
Shreveport	1	1	0	0	0	2	1	0	1	1	29
Oklahoma:											
Muskogee	0	0		0	0	0		9	0	0	
Texas:											
Dallas	2	3	0	0	0	1	3	1	1	0	46
Fort Worth	0	1	0	0	0	1	1	6	0	0	
Galveston	0	0	0	0	0	1	0	0	0	0	14
Houston	1	1	0	0	0	4	2	0	0	0	56
San Antonio	2	0	0	0	0	2	1	0	0	0	40
MOUNTAIN											
Montana:											
Billings	0	0	0	0	0	0	0	0	0	0	
Great Falls	0	0	0	0	0	0	0	0	0	4	6
Helena	0	0	0	0	0	0	0	0	0	0	3
Missoula	0	0	0	0	0	0	0	0	0	0	9
Idaho:											
Boise	0	0	0	5	0	1	0	0	0	0	5
Colorado:											
Denver	3	1	0	0	0	4	1	1	0	8	64
Pueblo	0	0	0	0	0	0	0	1	0	6	7
New Mexico:											
Albuquerque	0	3	0	0	0	0	0	0	0	0	
Utah:											
Salt Lake City	2		0				2				
Nevada:											
Reno	0	0	0	0	0	1	0	0	0	0	7
PACIFIC											
Washington:											
Seattle	5	0	0	0			2	2		0	
Spokane	2	0	1	0			0	2		1	
Tacoma	1	3	1	0	0	0	0	0	0	0	26
Oregon:											
Portland	1	1	3	0	0	0	1	0	0	0	75
Salem	0	0	0	0	0	0		0	0	0	
California:											
Los Angeles	7	6	1	0	0	20	2	1	1	60	250
Sacramento	0	0	0	0	0	0	1	3	1	0	22
San Francisco	4	1	0	0	0	11	0	0	1	12	163

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	0	0	0	0	0	1	5	1	0
Rhode Island:									
Providence	0	0	0	0	0	0	0	1	0
MIDDLE ATLANTIC									
New York:									
New York	3	1	1	1	0	0	15	8	3
Rochester	1	0	0	0	0	0	1	0	0
New Jersey:									
Camden	0	0	0	0	0	0	0	1	0
Newark	1	0	0	0	0	0	1	0	0
Trenton	0	0	1	1	0	0	0	0	0

City reports for week ended September 3, 1932—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
MIDDLE ATLANTIC—continued									
Pennsylvania:									
Philadelphia	2	2	0	0	0	0	1	102	11
Pittsburgh	0	0	0	0	0	0	0	1	0
Reading	0	0	0	0	0	0	0	1	0
Scranton	0	0	0	0	0	0		3	0
EAST NORTH CENTRAL									
Ohio:									
Cleveland	0	2	1	0	0	0	3	0	0
Illinois:									
Chicago	2	0	2	1	0	1	4	6	0
Michigan:									
Detroit	0	0	0	0	0	0	3	1	0
Grand Rapids	0	0	0	0	0	0	0	1	0
Wisconsin:									
Milwaukee	0	0	0	0	0	0	0	1	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	0	0	0	0	0	0	0	2	0
Minneapolis	0	0	0	0	0	0	1	1	0
St. Paul	1	0	0	0	0	0	1	1	1
Iowa:									
Des Moines	0	0	0	0	0	0	0	1	0
Kansas:									
Wichita	0	0	0	0	0	0	1	1	0
SOUTH ATLANTIC									
Maryland:									
Baltimore [1]	1	0	0	0	0	0	1	0	0
District of Columbia:									
Washington	1	0	0	0	0	0	0	8	2
Virginia:									
Roanoke	1	0	0	0	0	0	0	0	0
South Carolina [1]									
Charleston	0	0	0	0	2	0	0	1	0
Georgia [1]									
Savannah [1]	0	0	0	0	1	0	0	0	0
Florida [1]									
Miami	0	0	0	0	1	1	0	0	0
EAST SOUTH CENTRAL									
Kentucky:									
Louisville	1	1	0	0	0	0		0	0
Tennessee:									
Memphis	0	0	0	0	1	1	0	1	0
Alabama:									
Birmingham [1]	0	1	0	0	0	0	0	0	0
Mobile	0	0	0	0	4	1	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans [1]	3	1	0	0	0	0	0	2	0
Oklahoma:									
Muskogee	0	0	0	0	1	0		0	0
Texas:									
Fort Worth	0	0	0	0	0	2	1	0	0
San Antonio	0	0	0	0	0	1	0	0	0
PACIFIC									
California:									
Los Angeles	1	0	0	0	0	0	2	3	1
Sacramento	0	0	1	0	0	0	0	0	0
San Francisco	0	0	0	0	0	0	0	0	1

[1] Typhus fever, 7 cases and 1 death: 1 case at Baltimore, Md.; 1 case at Columbia, S. C.; 1 case at Atlanta, Ga.; 1 case at Savannah, Ga.; 2 cases at Tampa, Fla.; 1 death at Birmingham, Ala.; and 1 case at New Orleans, La.

FOREIGN AND INSULAR

Quebec Province—Communicable diseases—Week ended August 27, 1932.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended August 27, 1932, as follows:

Disease	Cases	Disease	Cases
Chicken pox	14	Puerperal fever	1
Diphtheria	20	Scarlet fever	19
Erysipelas	2	Tuberculosis	78
German measles	3	Typhoid fever	16
Measles	12	Whooping cough	84
Poliomyelitis	61		

CZECHOSLOVAKIA

Communicable diseases—July, 1932.—During the month of July, 1932, certain communicable diseases were reported in Czechoslovakia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	17	2	Paratyphoid fever	21	
Cerebrospinal meningitis	8	2	Puerperal fever	34	15
Diphtheria	1,397	76	Scarlet fever	1,195	18
Dysentery	11		Trachoma	117	
Malaria	82		Typhoid fever	377	31

ITALY

Communicable diseases—Four weeks ended April 3, 1932.—During the four weeks ended April 3, 1932, cases of certain communicable diseases were reported in Italy as follows:

Disease	Mar. 7-13		Mar. 14-20		Mar. 21-27		Mar. 28-Apr. 3	
	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected
Anthrax	16	15	11	11	12	12	8	8
Cerebrospinal meningitis	13	12	9	9	11	11	22	18
Chicken pox	290	95	233	93	237	103	235	79
Diphtheria and croup	452	260	419	240	468	265	400	227
Dysentery	2	2	3	3	1	1	8	8
Lethargic encephalitis	2	2	1	1	1	1	4	4
Measles	2,599	278	2,717	281	2,511	282	2,380	284
Poliomyelitis	10	9	3	3	2	2	3	3
Scarlet fever	307	101	262	95	327	120	257	93
Typhoid fever	158	114	163	112	262	130	168	97

MEXICO

Tampico—Communicable diseases—August, 1932.—During the month of August, 1932, certain communicable diseases were reported in Tampico, Mexico, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria	34	1	Paratyphoid fever		2
Enteritis (various)		80	Smallpox	2	1
Influenza	10	1	Tuberculosis		28
Malaria	491	18	Typhoid fever	12	
Measles	2		Whooping cough	55	1

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of the quarantinable diseases appears in the Public Health Reports for August 26, 1932, pp. 1798–1811. A similar cumulative table will appear in the Public Health Reports to be issued September 30, 1932, and thereafter, at least for the time being, in the last issue (published on the last Friday) of each month.)

Cholera

Baluchistan.—During the two weeks ended August 27, 1932, 46 cases of cholera with 28 deaths were reported in Baluchistan.

China.—Cholera is still reported from most of the cities in China from which reports of its presence have been received. The incidence appears to be diminishing in most places. For the two weeks ended August 27, 1932, Hankow reported 225 cases and 36 deaths. For the week ended September 3, 1932, Amoy reported 52 cases and 1 death; Hong Kong, 8 cases and 5 deaths; Macao, 4 cases, 4 deaths; Nanking, 197 cases, 21 deaths; and Shanghai, 389 cases, 28 deaths.

Philippine Islands.—For the week ended September 10, 1932, cholera was reported in the Philippine Islands as follows: Biliran Island, 30 cases, 10 deaths; Daram Island, 9 cases, 9 deaths. On September 10 and 11, 1932, 7 cases of cholera and 3 deaths were reported at Catbalogan, Samar, Philippine Islands.

Plague

Hawaii Territory.—A plague-infected rat was found August 15, 1932, and another August 17, at Makawao, island of Maui, Territory of Hawaii. Late report states that the report of two plague-infected rats captured August 11, 1932, at Makawao, should have read one plague-infected rat. (See Public Health Reports, Sept. 2, 1932, p. 1857.)

UNITED STATES TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

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SPECIAL ARTICLE

Prevalence of Communicable Diseases in the United States

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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CONTENTS

PUBLIC HEALTH REPORTS

VOL. 47 SEPTEMBER 30, 1932 NO. 40

CURRENT PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES[1]

August 14–September 10, 1932

The prevalence of certain important communicable diseases, as indicated by weekly telegraphic reports from State health departments to the United States Public Health Service, is summarized in this report. The underlying statistical data are published weekly in the Public Health Reports, under the section entitled "Prevalence of Disease."

Poliomyelitis.—For the country as a whole, the number of reported cases of poliomyelitis rose from 365 for the 4-week period ended August 13 to 986 for the current period. The cases were distributed among the geographic areas as follows: New England and Middle Atlantic, 713; East North Central, 69; West North Central, 73; South Atlantic, 63; South Central, 36; Mountain and Pacific, 32. The unusual prevalence of the disease is still confined to States along the Atlantic Coast and the North Central groups. In Pennsylvania the number of cases rose from 112 for the preceding 4-week period to 473 for the current period; in New Jersey from 26 to 124; in New York from 39 to 99; in Minnesota from 17 to 35; in West Virginia from 4 to 17; and in the District of Columbia from 0 to 12. No further increase was reported from the East North Central group of States during this period, although there was a definite increase in the preceding period. The South Central and Mountain and Pacific areas remained unaffected, except for the usual seasonal increase.

In relation to preceding years the current incidence was more than twice the incidence for the same period in 1929, a very low year, but it was considerably below the average for a number of years preceding 1931. For this period in 1931 the number of cases totaled 4,986.

Measles.—All sections of the country showed a continued seasonal decrease of measles during the four weeks ended September 10. The number of cases reported (2,385) was, however, the highest for the

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[1] From the Office of Statistical Investigations, U. S. Public Health Service. The numbers of States included for the various diseases are as follows: Typhoid fever, 47; poliomyelitis, 48; meningococcus meningitis, 48; smallpox, 48; measles, 45; diphtheria, 47; scarlet fever, 47; influenza, 39 States and New York City. The District of Columbia is counted as a State in these reports.

corresponding period in four years. Each geographic area, except the South Central, reported an increase over last year. In the South Central area the number of cases (55) was only about 50 per cent of the number reported for the same period in each of the three preceding years.

Smallpox.—The incidence of smallpox reached its lowest level for the current year during the 4-week period ended September 10. The number of cases reported was 149, which was only 37 per cent of the number reported for the corresponding period in 1931. With one exception, the New England and Middle Atlantic, all areas reported a very appreciable decrease from the figure for the same period in recent years. The New England and Middle Atlantic group reported 19 cases (all of which occurred in New York), as against 18, 2, and 24 for the corresponding period in 1931, 1930, and 1929, respectively. For the country as a whole, the reported number of cases totaled 660 for this period in 1930 and 753 in 1929.

Diphtheria.—The comparison of diphtheria with previous years continued very favorable. The number of cases reported for the four weeks ended September 10 was 2,957, as compared with 3,130, 2,546, and 3,727 for the corresponding period in the years 1931, 1930, and 1929, respectively. In most regions the incidence very closely approximated that of last year, but in the South Atlantic an increase of about 20 per cent was reported.

Meningococcus meningitis.—The incidence of meningococcus meningitis continued considerably below the level of recent years. There were 160 cases reported for the 4-week period ended September 10. Each geographic area, except the South Central, reported the lowest incidence for its region in four years. In that region the number of cases (24) was lower than the number in each of the years 1931 and 1930, but it was more than twice the number reported in 1929. For this period in 1931 the number of cases for the whole reporting area totaled 259, as against 354 in 1930 and 385 in 1929—both years of relatively high incidence.

Scarlet fever.—Very little change from the preceding 4-week period occurred in the incidence of scarlet fever during the current period. For the country as a whole the number of reported cases (4,048) was approximately 650 in excess of the average number of cases for the three preceding years. Reports indicated that the disease was still unusually prevalent in the New England and Middle Atlantic States. The incidence there still maintained the highest level in four years. In other geographic areas the incidence was very close to the average for recent years.

Typhoid fever.—Reports indicate that typhoid fever was considerably more prevalent during the current period than for the corresponding period in recent years. In all regions except the Mountain

and Pacific the incidence was the highest in four years. In the Mountain and Pacific region the incidence (176 cases) was the lowest in four years. For all reporting States the number of cases was 4,529, as compared with 3,914 for the same period last year. In 1930 and 1929 the number of cases reported for this period was 4,030 and 3,418, respectively.

Influenza.—For the current period there were 1,553 cases of influenza reported, as compared with 1,011, 875, and 1,128 for the same period in the years 1931, 1930, and 1929, respectively. While the number of cases was not large, appreciable increases over last year were noted in the East North Central, South Central, and Mountain and Pacific areas. The numbers of cases reported from other areas closely approximated last year's incidence.

Mortality, all causes.—The death rate from all causes in large cities as reported by the Bureau of the Census continued low, viz., 9.4 per 1,000 inhabitants. For the corresponding period in both 1931 and 1930 the rate was 9.9. The current rate is the lowest in the seven years for which records are available.

COURT DECISION RELATING TO PUBLIC HEALTH

Municipality required to pay compensation of local registrar of vital statistics.—(Colorado Supreme Court; People ex rel. Hershey *v.* McNichols, 13 P. (2d) 266; decided June 20, 1932.) Acting under the law providing for the registration of births and deaths, the State Board of Health of Colorado appointed the plaintiff as local registrar of vital statistics for the Denver registration district. Plaintiff's compensation as such registrar was on a fee basis and varied according to the number of births and deaths registered. The statute provided for the payment of this compensation "by the treasurer of the incorporated town, city, or county in which the registration district is situated, upon certification of the State registrar of vital statistics and after approval of the proper auditing officials of such incorporated town, city, or county." The State registrar, pursuant to the statute, certified that a certain amount was due the plaintiff for his services during a specified period of time. The certificate was presented for audit to the auditor of the city and county of Denver, who took the position that there was no liability on the part of the municipality to pay for the plaintiff's services, and that, the claim being thus illegal, he had no discretion to approve or reject it, but was bound by the Denver charter to withhold his approval. The plaintiff then instituted a mandamus proceeding to compel the auditor to act.

The supreme court, in its opinion, stated that article 20 of the State constitution gave to the people of the city and county of Denver

exclusive control in matters of local concern only, and that "After the adoption of that article, the city and county, as a municipality, continued to be, as the city was before, an agency of the State for the purpose of government and 'as much amenable to State control in all matters of a public, as distinguished from matters of a local, character as are other municipalities.'" The matters dealt with in the registration act, the court held, were not of local concern only, but were of general public importance. Answering the contention that the registration statute was unconstitutional in that the legislature was without power to make the compensation of the local registrar a charge upon the treasury of the city and county of Denver, the supreme court said that the plaintiff was "an officer of neither a city nor a county but of a registration district, a State agency created by the legislature and charged with the administration of governmental duties." The registrar's duties were "not performed," said the court, "for the benefit of the residents of Denver only, but for the protection of the health, safety, and welfare of the people of the entire State," and the legislature had the power "In the absence of a constitutional limitation * * * to impose upon the city and county of Denver a liability to pay the local registrar's compensation." The court held that the legislature was not deprived of the power to require the city and county of Denver to pay the compensation of the registrar by either article 20 of the State constitution, mentioned above, or by section 2 of article 10 which provided that "The general assembly shall provide by law for an annual tax sufficient, with other resources, to defray the estimated expenses of the State government for each fiscal year." The judgment of the trial court, which was adverse to the plaintiff, was reversed by the supreme court.

DEATHS DURING WEEK ENDED SEPTEMBER 10, 1932

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Sept. 10, 1932	Corresponding week, 1931
Data from industrial insurance companies:		
Policies in force	70,787,013	74,937,114
Number of death claims	9,657	9,817
Death claims per 1,000 policies in force, annual rate	7.1	6.8
Death claims per 1,000 policies, first 36 weeks of year, annual rate	9.7	9.9
Data from 85 large cities of the United States:		
Total deaths	6,341	7,115
Deaths per 1,000 population, annual basis	9.0	10.2
Deaths under 1 year of age	570	740
Deaths under 1 year of age per 1,000 estimated live births [1]	47	57
Deaths per 1,000 population, annual basis, first 36 weeks of year	11.3	12.2

[1] 1932, 81 cities; 1931, 76 cities.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended September 17, 1932, and September 19, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended September 17, 1932, and September 19, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Sept. 17, 1932	Week ended Sept. 19, 1931	Week ended Sept. 17, 1932	Week ended Sept. 19, 1931	Week ended Sept. 17, 1932	Week ended Sept. 19, 1931	Week ended Sept. 17, 1932	Week ended Sept. 19, 1931
New England States:								
Maine	1	3	3	1	1	3	1	0
New Hampshire	1						0	0
Vermont	1				15	1	0	0
Massachusetts	21	30	3	4	25	16	2	1
Rhode Island	1	5			3	8	0	0
Connecticut	6	3	8	1	11	3	0	0
Middle Atlantic States:								
New York	28	45	[1] 8	[1] 8	70	59	4	15
New Jersey	16	11	2		26	19	3	2
Pennsylvania	42	60			29	61	8	9
East North Central States:								
Ohio	39	25	11	7	15	21	1	1
Indiana	55	11	7	19	4	6	1	1
Illinois	50	45	3	147	9	33	1	3
Michigan	25	20	1	3	76	20	1	9
Wisconsin	11	12	22	12	6	14	0	4
West North Central States:								
Minnesota	14	9	1		10	11	1	1
Iowa	5	8			1	3	0	1
Missouri	38	32		1	8	3	1	3
North Dakota	1	1				2	0	1
South Dakota		1				3	0	0
Nebraska	7	6	13		3	8	0	3
Kansas	22	19		1	11	10	0	0
South Atlantic States:								
Delaware					1		0	0
Maryland [2] [3]	7	21	1	3	1	6	1	2
District of Columbia [4]	1	13		1	2		0	0
Virginia	32				13		0	
West Virginia	16	23			5	7	1	1
North Carolina [3]	50	105	4	15	28	12	2	1
South Carolina [3]	17	19	143	142	4	4	0	0
Georgia [3]	32	39	21	6	1	4	0	2
Florida	21	4	8		2	1	0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended September 17, 1932, and September 19, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Sept. 17, 1932	Week ended Sept. 19, 1931	Week ended Sept. 17, 1932	Week ended Sept. 19, 1931	Week ended Sept. 17, 1932	Week ended Sept. 19, 1931	Week ended Sept. 17, 1932	Week ended Sept. 19, 1931
East South Central States:								
Kentucky	60	125	-------	-------	4	37	0	0
Tennessee	104	79	27	5	5	6	3	1
Alabama [3]	87	77	2	10	-------	-------	2	2
Mississippi	37	111	-------	-------	-------	-------	0	0
West South Central States:								
Arkansas	20	38	16	-------	3	5	0	0
Louisiana [3]	22	23	1	8	7	2	2	0
Oklahoma [5]	52	67	28	13	2	1	0	0
Texas [3]	14	20	10	1	-------	-------	0	0
Mountain States:								
Montana	1	-------	1	-------	21	12	0	0
Idaho	5	-------	-------	-------	-------	1	0	1
Wyoming	-------	-------	-------	-------	4	-------	0	0
Colorado	4	3	-------	-------	1	2	1	0
New Mexico	10	7	-------	-------	-------	1	0	0
Arizona	2	3	13	4	-------	1	0	0
Utah [2]	-------	2	•.	6	-------	-------	1	1
Pacific States:								
Washington	-------	4	-------	-------	6	6	0	0
Oregon	-------	3	7	12	15	10	0	0
California	42	34	149	27	24	73	2	3
Total	1,020	1,166	508	457	467	490	39	68

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Sept. 17, 1932	Week ended Sept 19, 1931	Week ended Sept 17, 1932	Week ended Sept. 19, 1931	Week ended Sept. 17, 1932	Week ended Sept. 19, 1931	Week ended Sept. 17, 1932	Week ended Sept. 19, 1931
New England States:								
Maine	1	5	2	3	0	0	6	6
New Hampshire	0	5	0	0	0	0	0	0
Vermont	1	7	8	3	0	1	0	0
Massachusetts	4	139	95	72	0	0	6	11
Rhode Island	1	12	6	10	0	0	0	2
Connecticut	0	101	22	7	0	0	2	8
Middle Atlantic States:								
New York	20	430	96	125	0	0	63	50
New Jersey	40	98	34	32	0	0	19	6
Pennsylvania	145	25	132	91	0	0	86	77
East North Central States:								
Ohio	4	5	168	93	1	1	70	55
Indiana	0	1	43	26	1	4	19	12
Illinois	7	51	133	87	0	0	39	57
Michigan	10	170	59	67	0	1	22	16
Wisconsin	8	74	23	13	0	0	2	8
West North Central States:								
Minnesota	8	76	21	26	0	2	6	12
Iowa	1	7	18	13	0	1	15	3
Missouri	0	1	35	28	0	13	19	28
North Dakota	1	2	2	3	0	0	3	1
South Dakota	0	2	3	7	0	7	1	1
Nebraska	6	5	14	10	0	0	0	2
Kansas	2	0	42	22	0	0	14	12
South Atlantic States:								
Delaware	2	0	3	2	0	0	9	2
Maryland [2, 3]	7	4	19	32	0	0	47	26
District of Columbia [4]	0	0	3	4	0	0	1	2
Virginia	1	4	35	-------	0	-------	39	-------
West Virginia	5	4	30	21	0	0	53	89
North Carolina [3]	2	7	40	74	0	0	26	46
South Carolina [3]	2	0	4	15	0	0	81	39
Georgia [3]	0	3	14	15	0	0	35	50
Florida	0	0	6	5	0	0	4	7

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended September 17, 1932, and September 19, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Sept. 17, 1932	Week ended Sept. 19, 1931	Week ended Sept. 17, 1932	Week ended Sept. 19, 1931	Week ended Sept. 17, 1932	Week ended Sept. 19, 1931	Week ended Sept. 17, 1932	Week ended Sept. 19, 1931
East South Central States:								
Kentucky	0	0	60	37	1	0	58	76
Tennessee	1	6	47	35	0	7	95	52
Alabama [3]	0	1	43	49	1	2	19	23
Mississippi	0	2	26	17	0	2	15	26
West South Central States:								
Arkansas	0	0	9	10	1	0	20	50
Louisiana [3]	2	3	14	11	0	6	22	53
Oklahoma [5]	3	1	23	41	0	2	22	63
Texas [3]	1	0	10	22	0	4	23	27
Mountain States:								
Montana	0	6	11	4	0	1	6	5
Idaho	0	0	0	4	1	1	0	0
Wyoming	0	0	5	4	0	0	3	1
Colorado	0	0	47	10	0	0	2	5
New Mexico	1	0	10	4	0	0	9	12
Arizona	0	0	3	1	0	0	5	6
Utah [2]	0	0	1	4	0	0	0	2
Pacific States:								
Washington	1	5	23	28	1	9	5	6
Oregon	1	2	5	6	1	1	1	2
California	3	8	68	53	7	4	5	31
Total	286	1,272	1,512	1,246	15	69	938	1,069

[1] New York City only.
[2] Week ended Friday.
[3] Typhus fever, 39 cases; 1 case in Maryland, 1 case in North Carolina, 3 cases in South Carolina, 23 cases in Georgia, 8 cases in Alabama, 2 cases in Louisiana and 1 case in Texas.
[4] Rocky Mountain or Spotted fever, 1 case in District of Columbia.
[5] Figures for 1932 are exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week:

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
August, 1932										
Colorado		29			16		2	26	1	30
Delaware	1	1		2	2		3	13	0	10
Georgia	4	65	64	265	27	55		42	0	269
Indiana	20	107	52		24		0	94	7	109
Maryland	2	45	17	1	19	1	5	87	0	183
Michigan	7	47	7	3	544		22	296	4	70
Minnesota	4	28	7		29		34	68	2	15
New Jersey	4	59	13		246		100	135	0	51
New Mexico	1	43	2	16	3	4	0	22	0	32
New York	15	199		7	763		89	517	19	235
North Carolina	3	115	65		126	261	4	124	0	165
Ohio	6	96	23	1	122		13	462	8	327
Rhode Island		5	2		18		4	35	0	5
Wisconsin	9	40	103		134		4	59	0	24

August, 1932

	Cases
Anthrax:	
Delaware	2
Botulism:	
New York	3
Chicken pox:	
Colorado	19
Delaware	2
Georgia	3
Indiana	12
Maryland	23
Michigan	92
Minnesota	48
New Jersey	48
New Mexico	2
New York	282
North Carolina	17
Ohio	77
Rhode Island	8
Wisconsin	119
Conjunctivitis:	
Maryland	2
Diarrhea:	
Maryland	145
Diarrhea and enteritis:	
Ohio	88
Dysentery:	
Georgia	31
Maryland	47
Minnesota	5
Minnesota (amebic)	2
New Mexico	5
New York	16
Ohio	13
Food poisoning:	
Ohio	24
German measles:	
Colorado	1
Maryland	8
New Jersey	17
New Mexico	4
New York	43
North Carolina	6
Ohio	9
Wisconsin	9
Hookworm disease:	
Colorado	1
New Mexico	1
Impetigo contagiosa:	
Colorado	5
Maryland	22
Jaundice:	
Maryland	1
Lead poisoning:	
Maryland	6
New Jersey	1
Ohio	8
Lethargic encephalitis:	
Georgia	1
Maryland	2
Michigan	3
New Jersey	8
New York	14
Ohio	2
Wisconsin	1
Mumps:	
Colorado	30
Delaware	1
Georgia	6
Indiana	32
Maryland	54
Michigan	79
New Jersey	151
New Mexico	6
New York	374
Ohio	51
Rhode Island	8
Wisconsin	66
Ophthalmia neonatorum:	
Maryland	1
New Jersey	5
New York	9
North Carolina	5
Ohio	91
Wisconsin	1
Paratyphoid fever:	
Georgia	5
New Jersey	3
New York	5
North Carolina	1
Ohio	5
Rhode Island	1
Puerperal septicemia:	
Colorado	1
Delaware	1
New York	12
Ohio	1
Rabies in animals:	
New Jersey	20
New York [1]	2
Rocky Mountain spotted or tick fever:	
Maryland	10
New Jersey	1
New York	1
North Carolina	1
Septic sore throat:	
Georgia	26
Indiana	1
Maryland	4
Michigan	10
New York	11
North Carolina	5
Ohio	61
Tetanus:	
Delaware	1
Indiana	2
Maryland	3
New Jersey	2
New York	9
Ohio	5
Trachoma:	
Minnesota	1
New Jersey	2
Ohio	5
Wisconsin	1
Trichinosis:	
Maryland	1
New York	6
Ohio	2
Tularaemia:	
Georgia	1
Minnesota	3
North Carolina	1
Typhus fever:	
Georgia	47
Maryland	7
New York	2
North Carolina	2
Undulant fever:	
Colorado	3
Georgia	2
Indiana	3
Maryland	6
Michigan	10
Minnesota	9
New Jersey	6
New York	19
Ohio	12
Wisconsin	3
Vincent's angina:	
Colorado	4
Maryland	5
New York [1]	98
Whooping cough:	
Colorado	110
Delaware	17
Georgia	87
Indiana	158
Maryland	169
Michigan	1,037
Minnesota	156
New Jersey	515
New Mexico	80
New York	1,546
North Carolina	551
Ohio	727
Rhode Island	207
Wisconsin	842

[1] Exclusive of New York City.

WEEKLY REPORTS FROM CITIES

City reports for week ended September 10, 1932

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded, and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1923 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	2	0	0		0	0	1	3
New Hampshire:								
Concord	0	0	0		0	0	0	1
Nashua	2	0	0		0	0	1	0
Vermont:								
Barre	0	0	0		0	0	0	0
Massachusetts:								
Boston	10	12	0		0	5	5	5
Fall River	1	1	0		0	1	2	1
Springfield	2	1	1		0	0	0	0
Worcester	2	3	2		0	2	0	1
Rhode Island:								
Pawtucket	0	0	0		0	0	0	0
Providence	1	2	2	1	0	2	2	1
Connecticut:								
Bridgeport	0	3	0		0	1	0	0
Hartford	2	1	1		0	0	0	1
New Haven	1	0	0		0	0	1	0
MIDDLE ATLANTIC								
New York:								
Buffalo	2	5	1		0	1	2	11
New York	21	65	31	4	3	28	29	60
Rochester	2	2	0		0	0	0	3
Syracuse	2	0	0		0	0	0	0
New Jersey:								
Camden	0	1	2		0	0	0	0
Newark	2	6	2	2	0	8	11	3
Trenton	0	1	0		0	0	0	1
Pennsylvania:								
Philadelphia	1	20	4	1	1	5	5	15
Pittsburgh	0	8	3		0	0	3	10
Reading	0	1	0		0	1	0	1
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	1	4	0		0	0	2	5
Cleveland	7	14	1	3	0	0	3	8
Columbus	0	2	0		0	8	0	1
Toledo	2	2	0		0	5	1	1
Indiana:								
Fort Wayne	0	1	5		0	0	0	6
Indianapolis	0	2	1		0	0	7	5
South Bend	0	0	0		0	0	0	0
Terre Haute	0	0	0		0	0	0	0
Illinois:								
Chicago	8	46	6	1	3	10	1	23
Springfield	0	0	1		0	0	0	0

City reports for week ended September 10, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—continued								
Michigan:								
Detroit	4	25	5	....	0	6	2	10
Flint	0	1	0	....	0	0	0	2
Grand Rapids	0	1	0	....	0	0	8	2
Wisconsin:								
Kenosha	4	0	0	....	0	0	0	0
Madison	0	0	0	....	0	0	0	0
Milwaukee	5	5	1	....	0	0	4	1
Racine	1	1	0	....	0	0	0	0
Superior	0	0	0	....	0	0	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth	0	0	0	....	0	0	0	2
Minneapolis	2	9	1	....	0	2	1	2
St. Paul	1	4	0	....	0	0	0	2
Iowa:								
Des Moines	0	0	1	....	....	0	0	....
Sioux City	0	0	1	....	....	0	0	....
Waterloo	0	1	0	....	....	0	0	....
Missouri:								
Kansas City	0	1	2	....	1	0	1	7
St. Joseph	0	0	0	....	0	0	0	4
St. Louis	1	15	2	....	....	0	3	....
North Dakota:								
Fargo	0	0	0	....	0	0	0	1
South Dakota:								
Aberdeen	0	0	0	....	....	0	0	....
Nebraska:								
Omaha	0	4	7	....	0	1	1	2
Kansas:								
Topeka	0	0	0	....	0	3	0	1
Wichita	1	1	0	....	0	0	0	1
SOUTH ATLANTIC								
Delaware:								
Wilmington	2	0	0	....	0	0	0	4
Maryland:								
Baltimore	2	10	4	1	1	3	2	5
Cumberland	0	0	0	....	0	0	0	0
Frederick	0	0	0	....	0	0	0	0
District of Columbia:								
Washington	0	7	1	....	0	1	0	6
Virginia:								
Lynchburg	0	2	3	....	0	0	0	0
Norfolk	0	0	0	....	0	1	0	2
Richmond	0	7	2	....	1	0	0	2
Roanoke	1	3	0	....	0	0	0	0
West Virginia:								
Charleston	0	1	0	....	0	0	0	0
Huntington	0	....	0	....	0	0	0	0
Wheeling	0	0	0	....	0	0	0	0
North Carolina:								
Raleigh	....	2	....	....	....	....	....	....
Wilmington	0	1	2	....	0	0	0	0
Winston-Salem	0	2	0	....	0	15	0	0
South Carolina:								
Charleston	0	0	0	4	0	0	0	2
Columbia	0	1	2	....	0	0	0	4
Greenville	0	1	0	....	0	0	1	0
Georgia:								
Atlanta	0	8	5	5	0	0	1	7
Brunswick	8	0	0	....	0	0	0	0
Savannah	0	0	2	7	1	0	0	2
Florida:								
Miami	0	0	0	....	0	0	0	1
Tampa	0	2	3	....	0	0	0	0

City reports for week ended September 10, 1938—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
EAST SOUTH CENTRAL								
Kentucky:								
Covington		0						
Lexington	0		0		0	0	0	
Louisville	0		2	1	0	1	41	7
Tennessee:								
Memphis	0	1	2		0	0	0	3
Nashville	0	3	0		0	0	0	0
Alabama:								
Birmingham	0	3	3		2	0	0	2
Mobile	0	0	0		0	0	0	0
Montgomery	3	2	3			0	0	
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith	0	0	0			0	0	
Little Rock	0	0	1		0	0	0	2
Louisiana.								
New Orleans	0	6	0	2	1	0	0	10
Shreveport	0	1	0		0	0	0	1
Oklahoma:								
Muskogee	0		1		0	0	0	0
Tulsa	3	0	0			0	0	
Texas:								
Dallas	2	4	11	1	1	0	0	4
Fort Worth	0	1	2		0	0	0	1
Galveston	0	0	0		0	0	0	1
Houston	0	4	3		0	0	0	2
San Antonio	0	2	0		0	0	0	3
MOUNTAIN								
Montana:								
Billings	0	0	0		0	0	0	0
Great Falls	0	0	0		0	1	0	0
Helena	0	0	0		0	1	0	0
Missoula	0	0	0		0	0	0	0
Idaho:								
Boise	0	0	0		0	0	0	0
Colorado:								
Denver	0	6	1		0	1	2	4
Pueblo	1	1	0		0	0	0	0
New Mexico:								
Albuquerque	0	0	0		0	0	1	0
Arizona:								
Phoenix	0	0	0		0	0	0	1
Utah:								
Salt Lake City	1	1	0		0	0	1	3
Nevada:								
Reno	0	0	0		0	0	0	0
PACIFIC								
Washington:								
Seattle	4	2	0			0	0	
Spokane	0	1	0			0	0	
Tacoma	0	2	0		0	1	0	0
Oregon:								
Portland	0	3	0		0	0	1	3
Salem	0	1	0		0	1	0	0
California:								
Los Angeles	4	16	8	48	1	6	6	13
Sacramento	1	2	0		0	0	1	2
San Francisco	3	4	5	1	0	1	2	5

City reports for week ended September 10, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	0	0	0	0	0	0	0	4	0	3	19
New Hampshire:											
Concord	0	0	0	0	0	0	0	0	0	0	9
Nashua	0	0	0	0	0	1	0	0	0	0	--------
Vermont:											
Barre	0	0	0	0	0	0	0	0	0	0	0
Massachusetts:											
Boston	15	13	0	0	0	6	3	2	0	21	154
Fall River	1	1	0	0	0	0	0	0	0	0	19
Springfield	1	1	0	0	0	0	1	0	0	0	22
Worcester	4	2	0	0	0	0	0	0	0	5	26
Rhode Island:											
Pawtucket	0	0	0	0	0	0	0	0	0	0	12
Providence	3	2	0	0	0	1	0	0	0	11	55
Connecticut:											
Bridgeport	1	1	0	0	0	1	0	0	0	4	25
Hartford	1	1	0	0	0	0	0	0	0	2	32
New Haven	1	0	0	0	0	0	1	0	0	9	29
MIDDLE ATLANTIC											
New York:											
Buffalo	6	4	0	0	0	8	1	2	0	39	106
New York	20	24	0	0	0	82	36	27	2	120	1,122
Rochester	2	0	0	0	0	2	0	1	0	3	54
Syracuse	1	1	0	0	0	0	0	0	0	19	41
New Jersey:											
Camden	0	2	0	0	0	0	0	0	0	6	25
Newark	3	1	0	0	0	4	1	0	0	8	83
Trenton	1	1	0	0	0	0	0	0	0	0	36
Pennsylvania:											
Philadelphia	17	23	0	0	0	19	8	4	1	20	453
Pittsburgh	10	5	0	0	0	1	4	0	0	31	98
Reading	0	0	0	0	0	0	0	0	0	8	22
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	5	4	0	0	0	9	3	4	1	2	105
Cleveland	10	16	0	0	0	13	5	3	0	19	162
Columbus	2	5	0	0	0	2	0	0	0	1	52
Toledo	3	7	0	0	0	1	1	0	0	8	50
Indiana:											
Fort Wayne	0	0	0	0	0	1	0	3	0	0	--------
Indianapolis	2	3	1	0	0	3	1	2	0	10	--------
South Bend	0	3	0	0	0	0	0	0	0	4	14
Terre Haute	1	1	0	0	0	0	0	0	0	0	14
Illinois:											
Chicago	29	18	0	0	0	27	6	5	0	40	557
Springfield	0	1	0	0	0	0	0	0	0	1	16
Michigan:											
Detroit	21	16	0	0	0	6	4	1	0	63	209
Flint	4	2	0	0	0	1	1	1	0	3	18
Grand Rapids	3	0	0	0	0	0	0	0	0	13	26
Wisconsin:											
Kenosha	0	0	1	0	0	0	0	0	0	4	7
Madison	1	0	0	0	--------	--------	0	0	--------	0	--------
Milwaukee	6	4	0	0	0	2	0	0	0	54	67
Racine	2	0	0	0	0	0	1	0	0	10	14
Superior	1	1	0	0	0	0	0	1	0	0	3
WEST NORTH CENTRAL											
Minnesota:											
Duluth	4	2	0	0	0	1	0	0	0	1	17
Minneapolis	9	2	0	0	0	0	1	0	0	8	87
St. Paul	6	1	0	0	0	2	1	0	0	16	53

City reports for week ended September 10, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL—contd.											
Iowa:											
Des Moines	2	3	0	0	-------	-------	0	0	-------	0	26
Sioux City	0	0	0	0	-------	-------	1	0	-------	2	-------
Waterloo	0	0	0	0	-------	-------	0	5	-------	0	-------
Missouri:											
Kansas City	3	6	0	0	0	2	2	2	1	1	75
St. Joseph	1	1	0	0	0	0	0	0	0	0	17
St. Louis	9	3	0	0	0	5	6	14	0	9	146
North Dakota:											
Fargo	0	0	0	0	0	0	0	0	0	2	9
South Dakota:											
Aberdeen	0	1	0	0	-------	-------	0	0	-------	0	-------
Nebraska:											
Omaha	1	2	0	0	0	0	0	1	0	1	52
Kansas:											
Topeka	1	1	0	0	0	2	0	0	0	3	14
Wichita	1	1	0	0	0	0	1	0	0	5	20
SOUTH ATLANTIC											
Delaware:											
Wilmington	0	1	0	0	0	1	0	0	0	0	17
Maryland:											
Baltimore	4	6	0	0	0	10	8	2	0	24	151
Cumberland	0	0	0	0	0	0	0	0	0	0	11
Frederick	0	0	0	0	0	0	0	0	0	0	5
District of Columbia:											
Washington	5	5	0	0	0	7	3	2	0	10	104
Virginia:											
Lynchburg	0	1	0	0	0	0	1	2	0	10	10
Norfolk	1	0	0	0	0	0	1	0	0	2	26
Richmond	3	7	0	0	0	1	2	1	0	0	41
Roanoke	1	0	0	0	0	0	0	0	0	0	8
West Virginia:											
Charleston	1	0	0	0	0	0	2	[1] 2	0	2	[2] 12
Huntington	-------	0	-------	0	0	0	-------	0	0	0	-------
Wheeling	0	0	0	0	0	1	1	0	0	0	19
North Carolina:											
Raleigh	1	-------	0	-------	-------	-------	0	-------	-------	-------	-------
Wilmington	1	0	0	0	0	1	0	2	0	2	6
Winston-Salem	2	3	0	0	0	2	1	0	0	3	7
South Carolina:											
Charleston	0	0	0	0	0	2	2	2	0	1	19
Columbia	0	1	0	0	0	0	1	0	0	0	42
Greenville	-------	0	-------	0	0	0	0	0	0	4	-------
Georgia:											
Atlanta	4	2	0	0	0	4	3	7	3	9	85
Brunswick	0	0	0	0	0	0	0	0	0	0	2
Savannah	0	0	0	0	0	2	1	4	0	0	20
Florida:											
Miami	0	0	0	0	0	2	0	0	0	0	37
Tampa	0	0	0	0	0	0	0	1	0	0	16
EAST SOUTH CENTRAL											
Kentucky:											
Covington	1	-------	0	-------	-------	-------	0	-------	-------	-------	-------
Lexington	-------	6	-------	0	0	4	-------	2	1	0	16
Louisville	-------	2	-------	0	0	0	-------	2	0	0	64
Tennessee:											
Memphis	8	1	0	0	0	4	6	2	0	2	78
Nashville	1	0	0	0	0	0	5	2	1	0	31
Alabama:											
Birmingham	4	6	0	0	0	2	3	1	0	2	43
Mobile	1	0	0	0	0	0	0	0	0	1	19
Montgomery	0	0	0	0	-------	-------	2	1	-------	6	-------

[1] Nonresidents.

[2] 2 nonresidents.

City reports for week ended September 10, 1932—**Continued**

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	0	0	0			0	0		0	
Little Rock	1	0	0	0	0	3	1	0	0	0	6
Louisiana:											
New Orleans	2	2	0	0	0	7	5	1	0	0	132
Shreveport	1	1	0	0	0	0	1	0	3	1	20
Oklahoma:											
Muskogee	0	0		0	0	0		2	0	0	
Tulsa	2	1	0	0			1	13		0	
Texas:											
Dallas	2	0	0	0	0	2	1	3	0	0	55
Fort Worth	1	1	1	0	0	1	1	1	0	0	21
Galveston	0	0	0	0	0	1	1	0	0	0	11
Houston	1	0	0	0	0	1	1	0	0	0	51
San Antonio	1	1	0	0	0	6	0	0	0	0	38
MOUNTAIN											
Montana:											
Billings	0	0	0	0	0	0	0	0	0	0	7
Great Falls	0	0	0	0	0	0	0	0	0	0	7
Helena	0	0	0	0	0	0	0	0	0	2	
Missoula	0	0	0	0	0	0	1	0	0	0	2
Idaho:											
Boise	0	3	0	3	0	0	0	0	0	0	3
Colorado:											
Denver	3	3	0	0	0	4	1	1	0	11	57
Pueblo	0	0	0	0	0	2	0	0	0	4	9
New Mexico:											
Albuquerque	0	0	0	0	0	4	1	1	0	1	8
Arizona:											
Phoenix	0	1		0	0	2	0	0	0	0	
Utah:											
Salt Lake City	1	0	0	0	0	1	0	0	0	12	23
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	3
PACIFIC											
Washington:											
Seattle	5	3	0	0			2	0		3	
Spokane	2	0	1	0			1	0		0	
Tacoma	1	0	1	1	0	0	1	0	0	0	22
Oregon:											
Portland	3	2	3	0	0	2	1	1	0	0	62
Salem	0	0	1	1	0	0		0	0	0	
California:											
Los Angeles	9	12	1	3	0	19	2	1	0	40	217
Sacramento	0	1	0	0	0	1	0	0	0	0	20
San Francisco	4	2	1	0	0	11	1	1	0	6	113

Division, State, and city	Meningococcus meningitis: Cases	Meningococcus meningitis: Deaths	Lethargic encephalitis: Cases	Lethargic encephalitis: Deaths	Pellagra: Cases	Pellagra: Deaths	Poliomyelitis (infantile paralysis): Cases, estimated expectancy	Poliomyelitis (infantile paralysis): Cases	Poliomyelitis (infantile paralysis): Deaths
NEW ENGLAND									
Massachusetts:									
Boston	0	0	0	0	0	0	5	2	0
Springfield	0	0	0	0	0	0	1	1	0
Worchester	0	0	0	0	0	0	0	1	0
Rhode Island:									
Providence	0	0	0	0	0	0	1	2	0
Connecticut:									
Bridgeport	1	0	0	0	0	0	1	0	0

City reports for week ended September 10, 1932—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
MIDDLE ATLANTIC									
New York:									
New York [1]	2	0	0	1	0	0	17	12	3
New Jersey:									
Camden	0	0	0	0	0	0	0	3	0
Pennsylvania:									
Philadelphia	3	1	1	1	0	0	2	101	10
Pittsburgh	1	1	0	0	0	0	0	0	1
Reading	0	0	0	0	0	0	0	3	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	0	0	0	1	0	0	1	1	0
Cleveland	1	0	0	0	0	1	4	0	0
Indiana:									
Indianapolis	1	0	0	0	0	0	0	1	0
Illinois:									
Chicago	2	0	0	0		0	5	0	0
Michigan:									
Detroit	0	0	1	0	0	0	3	3	0
Wisconsin:									
Milwaukee	1	0	0	0	0	0	1	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis	0	0	0	0	0	0	0	1	0
St. Paul	0	0	0	0	0	0	0	4	1
Missouri:									
St. Louis	5	0	0	0	0	0	0	1	0
North Dakota:									
Fargo	0	0	0	0	0	0	0	1	0
Nebraska:									
Omaha	0	0	0	0	0	0	1	1	0
Kansas									
Wichita	1	0	0	0	0	0	0	1	0
SOUTH ATLANTIC									
Maryland:									
Baltimore	0	0	1	0	0	0	1	1	0
District of Columbia:									
Washington	0	0	0	0	0	0	1	3	0
Virginia:									
Lynchburg	0	0	0	0	1	0	0	0	0
Roanoke	0	1	0	0	0	0	0	0	0
South Carolina:									
Columbia	0	0	0	0	0	1	0	0	0
Georgia: [1]									
Savannah [1]	0	0	0	0	7	1	0	0	0
Florida: [1]									
Miami	0	0	0	0	0	1	0	0	0
EAST SOUTH CENTRAL									
Kentucky:									
Louisville	0	0	0	0	0	0	-------	1	0
Alabama:									
Montgomery	0	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans	0	0	0	0	1	1	0	0	0
Texas:									
San Antonio	0	0	0	0	0	1	0	0	1
PACIFIC									
Washington:									
Seattle	1	0	0	0	0	0	1	0	0
California:									
Los Angeles	0	0	0	0	0	0	2	1	0
San Francisco	0	0	0	0	0	0	1	1	0

[1] Typhus fever, 22 cases and 1 death: 1 case at New York City, N. Y.; 4 cases at Atlanta, Ga.; 15 cases at Savannah, Ga.; and 1 case and 1 death at Tampa, Fla.

FOREIGN AND INSULAR

PLAGUE-INFECTED RATS ON VESSEL

The steamship *City of Oxford*, which left Alexandria, Egypt, on August 19, 1932, arrived at Liverpool, England, September 2, 1932. About 14 dead rats which were found on the vessel proved to be plague infected. The ship was fumigated at Almería, and no live rat was found. Precautions taken at Liverpool included the re-fumigation of the vessel.

CANADA

Ontario Province—Communicable diseases—Four weeks ended August 27, 1932.—The Department of Health of the Province of Ontario, Canada, reports cases of certain communicable diseases for the four weeks ended August 27, 1932:

Disease	4 weeks, 1932		Disease	4 weeks, 1932	
	Cases	Deaths		Cases	Deaths
Cerebrospinal meningitis	2	2	Paratyphoid fever	11	
Chicken pox	169		Pneumonia		70
Conjunctivitis	1		Poliomyelitis	26	3
Diphtheria	79	5	Scarlet fever	83	
Dysentery		4	Septic sore throat	1	1
Erysipelas	8		Smallpox	3	
German measles	6		Syphilis	64	
Gonorrhea	100		Trench mouth	4	
Influenza	8	1	Tuberculosis	165	27
Jaundice	6		Typhoid fever	45	1
Lethargic encephalitis	1	1	Undulant fever	7	
Measles	388	2	Whooping cough	420	6
Mumps	111				

CUBA

Habana—Communicable diseases—Four weeks ended September 10, 1932.—During the four weeks ended September 10, 1932, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria	3	2	Tuberculosis	24	
Malaria [1]	8		Typhoid fever [1]	7	5
Scarlet fever	2				

[1] Many of these are from the island of Cuba, outside of Habana.

ITALY

Communicable diseases—Four weeks ended May 1, 1932.—During the four weeks ended May 1, 1932, cases of certain communicable diseases were reported in Italy as follows:

Disease	Apr. 4-10		Apr. 11-17		Apr. 18-24		Apr. 25-May 1	
	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected
Anthrax	12	12	15	14	10	9	7	6
Cerebrospinal meningitis	23	18	28	17	23	18	17	16
Chicken pox	288	106	283	101	290	104	202	83
Diphtheria and croup	398	230	369	232	413	223	324	192
Dysentery			4	2	6	5	2	2
Lethargic encephalitis	3	3	2	2	1	1	5	4
Measles	2,240	299	2,373	331	2,348	331	1,931	288
Poliomyelitis	9	9	11	11	8	8	4	4
Scarlet fever	287	110	287	106	320	118	306	108
Typhoid fever	209	114	201	123	159	99	161	98

PANAMA CANAL ZONE

Communicable diseases—July, 1932.—During the month of July, 1932, certain communicable diseases, including imported cases, were reported in the Panama Canal Zone and terminal cities as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Chicken pox	10		Pneumonia		15
Diphtheria	9		Poliomyelitis		1
Dysentery (amebic)	1		Scarlet fever	3	
Leprosy	2	1	Tuberculosis		35
Malaria	115	1	Typhoid fever	2	
Measles	11		Whooping cough	6	
Mumps	1				

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CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

[NOTE.—These tables are a continuation of those published in the PUBLIC HEALTH REPORTS for Aug. 26, 1932, pp. 1798-1811]

CHOLERA

[C indicates cases; D, deaths; P, present]

Place		Mar. 6-Apr. 2, 1932	Apr. 3-30, 1932	May 1-28, 1932	Week ended— June, 1932				July, 1932					August, 1932				September, 1932		
					4	11	18	25	2	9	16	23	30	6	13	20	27	3	10	17
Baluchistan	C													18	11	35	11	2		
	D													6	9	17	11			
China:																				
Amoy	C						3		15	149	392	399	192	110	97	97	36	52		
	D						2		11	85	202	181	103	48	40	21	14	1		
Canton	C	2	1	2	2	49	330	298	203	96	37	22	6	11	8	7	13	3	5	
	D			1	1	22	152	90	73	24	7	2	1		4	2	3		3	
Dairen[1]																				
Hankow	C		3	8			6	10	10	10	9	60	6	156	109	113	112			
	D		1	3					3	3	2	5	3	24	13	20	16			
Hong Kong	C							9	45	33	19	21	39	30	11	8	8	8	5	
	D							9	18	33	8	7	16	15	9	5	8	5	4	
Kwantung	C								P				2							
Macao	D										5	21	29	18	25	20	4	4		
Nanking	C						123	131	104	111	78	104	144	112	138	169	93	104		
	D						45	34	22	21	8	19	29	24	17	14	7	14		
Newchwang	C							1	5											
	D								4											
Shanghai	C			70	92	90	130	276	314	317	318	411	504	454	343	347	256	131		
	D			3	10	9	23	11	20	21	16	35	41	39	31	28	17	11		
Swatow[2]	C			1		1		49	48	46			56	67	67	48				
	D							3	3	11			3	10	7	11				
Tientsin	C					3	16	22	19	144	55	54	34	32	2	1	1		5	
	D						5	3	3	8	9	2		3						
Tsingtao	C																22			
	D																8			
Chosen	C																8	9		
	D																8	1		

India	C	4,952	6,295	4,386	852	787	818	1,066	1,090	824	908	1,410								
	D	2,358	3,194	2,170	427	419	424	541	590	432	463	650								
Bombay	C									1	1		2	1						
	D									1			1							
Calcutta	C	162	350	649	79	63	106	132	143	129	76	57	52	29	47	30	22			
	D	73	148	321	38	27	51	70	60	53	35	23	18	8	19	13	9			
Chittagong	C	2																		
	D	1																		
Madras	C	6																		
	D	3																		
Rangoon	C			1			1	2			1									
	D			1			1	1												
India (French):																				
Chandernagor	C			19			1													
	D			12			1													
Pondichéry Territory	C	2													2	1				
	D	2													2	1				
Pondichéry	C	1																		
	D	1																		
Indo-China (see also table below):																				
Pnom-Penh	C		1	1	1		1	1						1						
	D		1	1	1		1	1												
Saigon and Cholon	C	1	2	6	2	2	1	1	1											
	D		2	6	1	1	1	1	1											
Japan:																				
Kobe	C					1	1													
Osaka Prefecture	C												1							
Taiwan	C										16									
Tokyo	C					1	2													
Persia: Kouh Bezman	C		[3] 1																	
Philippine Islands:																				
Bulacan Province	C												2		1					
	D												1		1					
Iloilo Province	C																			1
	D																			1
Iloilo	C												1							
	D												1							
Laguna Province	D									1										
Leyte Province	C																	10	30	3
	D																	5	10	3
Samar Province	C																	21	16	17
	D																	11	12	11
Siam	C	1	2	8	8							1		1						
	D	2	1	7	4									1						
Bangkok	C	2	1				2													
	D	1																		

[1] 119 cases, 71 deaths, in Dairen, up to Aug. 6, 1932.
[2] Local unofficial reports included 159 deaths from cholera in Swatow, China, from June 10 to 30, 1932.
[3] A suspected case.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

CHOLERA—Continued

[C indicates cases; D, deaths; P, present]

Place		Mar. 6–Apr. 2, 1932	Apr. 3–30, 1932	May 1–28, 1932	Week ended— June, 1932: 4	June 11	June 18	June 25	July, 1932: 2	July 9	July 16	July 23	July 30	August, 1932: 6	Aug. 13	Aug. 20	Aug. 27	September, 1932: 3	Sept. 10	Sept. 17
On vessels:																				
S. S. Angora at Rangoon from Calcutta	C	1																		
S. S. Narbada at Rangoon from Calcutta	C		1																	
	D		1																	
S. S. Shanghai Maru at Kobe from Shanghai	C					1							1							
S. S. President Wilson en route to Manila from Honolulu via Shanghai and Hong Kong	C								2											
	D								1											
S. S. Protesilus at Hong Kong from Shanghai	C												P							
S. S. Nikawa Maru at Hong Kong from Shanghai	C												P							
S. S. Arankola at Rangoon from Calcutta	C						1													
S. S. Shantung at Swatow from Shanghai	C											1								
S. S. Yusang at Hong Kong from Shanghai	C													1						

Place		February, 1932	March, 1932	April, 1932: 1–10	Apr. 11–20	Apr. 21–30	May, 1932: 1–10	May 11–20	May 21–31	June, 1932: 1–10	June 11–20	June 21–30	July, 1932: 1–10	July 11–20	July 21–31
Indo-China (French) (see also table above):															
Annam [4]	C	4					93	20	21				8		
	D	4					7	2	6				4		
Cambodia [4]	C	5	10	4	1	20	12	6		13	16	13	11	5	2
	D	4	5	3		8	2	1		10	12	7	10	4	2
Cochin-China [4]	C	7	9	3	6	18	11	30		17	17	17	16	10	5
	D	5	5	2	3	13	8	21		16	12	14	15	8	4
Laos [4]	C			7											
	D			3											

[4] Reports incomplete.

PLAGUE[1]

Place		Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Apr. 3–30, 1932	May 1–28, 1932	Week ended— June, 1932: 4	June 11	June 18	June 25	July, 1932: 2	July 9	July 16	July 23	July 30	August, 1932: 6	Aug. 13	Aug. 20	Aug. 27	Sept. 3, 1932
Argentina:																			
Cordoba Province	C			2															
Rosario	D				1														
San Luis Province	C						1	1								1			
Belgian Congo	C				2														
British East Africa (see also table below):																			
Tanganyika	C		2			19	1												
	D					11													
Uganda	C	8	4	39	37	16	25	8	20	24	21	26	12	10					
	D	6	4	36	31	15	24	7	16	25	21	22	11	9					
Canary Islands: Palma Island—Los Lanos	C				1														
Ceylon: Colombo	C	4	3	2	5	5	3	3	2	5	1						1		2
	D	3	3	2	4	5	3	3	2	5	1								2
Plague-infected rats		1	1	5	8										2				1
Chile: Antofagasta—Plague-infected rats															3				
China:																			
Kwang Chow Wan	C		8																
	D		8																
Shensi Province	C	P																	
Dutch East Indies:																			
Java and Madura	D	459	362	365	279	72													
Tegal	C	1																	
West Java	C	141	213	239	85	45	63	51	37	41	45	44	50	70					
	D	139	213	237	84	45	63	51	36	42	45	44	49	70					
Ecuador (see table below).																			
Egypt:																			
Alexandria	C		2		12	1	2		1	3	1		1			1	5	1	
	D				3	2	1	1		1	1						5	1	
Assiout	C													1					
Beheira	C			1	2	1	1						1	1					
	D			1	3	1							2						
Beni Suef	C			37	2													1	
	D			8	3														
Gharbieh	C					2		1											
	D						1												
Minieh	C		3										1						
	D		3										1						

[1] Including plague in the United States and its possessions.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases: D, deaths; P, present]

Place		Feb. 7–Mar. 5, 1932	Mar. 6–Apr 2, 1932	Apr. 3–30, 1932	May 1–28, 1932	Week ended— June, 1932: 4	11	18	25	July, 1932: 2	9	16	23	30	August, 1932: 6	13	20	27	Sept. 3, 1932
Hawaii Territory:																			
Hawaii Island—																			
Hamakua—																			
Honokaa	C	2																	
	D	2																	
Plague-infected rats		1																	
Kukaiau—Plague-infected rats					1	1													
Maui Island—																			
Makawao [2]	C	1														1			
	D	1													1				
Plague-infected rats		4														2	2		
India	C	8,593	9,724	5,197	1,673	133	101	99	165	285	287	225	325						
	D	4,970	5,543	3,219	1,260	91	70	48	93	150	151	143	187						
Bassein	C	4	9	5	2		2		1		2			1	1	1	1	1	
	D	4	7	4	2		2		1		1			1	1	1	1	1	
Bombay	C	5	8	19	5	1											1		
	D	5	6	15	4	1						1					1		
Plague-infected rats		109	117	122	58	3		9	11	5	5	5	6	10	10	6	6	7	
Madras	C			[3] 1										5					
	D			1															
Madras Presidency	C	70	158	69	40	13	32	28	50	60	53	42	78	80					
	D	47	86	24	11	8	13	6	11	27	17	27	27	30					
Rangoon	C	9	4	7	1				1	2				1			2	3	
	D	8	4	6						2				1			2	3	
Plague-infected rats		2	8	5	3		1		2	2	2	1		1	3	1			
Indo-China (see table below).																			
Iraq: Baghdad	C	3							1				1			1	2		1
	D	1																	
Madagascar (see table below).																			
Morocco	C										1	5	1						
Peru (see table below).																			
Senegal (see table below).																			
Siam	C	1	7													1			
	D		3																

Southwest Africa.[4]																			
Syria: Beirut	C			2				1		2		1	1	1			1	1	
Union of South Africa: Orange Free State	C	P	P																
	D		10																
United States:																			
California—																			
Los Angeles—Plague-infected rats				1	2		1												
San Benito County—Plague-infected ground squirrels															2				
On vessels:																			
Steamship Columbia, at Naples from Barcelona—Plague-infected rats									2										
S. S. City of Oxford at Liverpool from Alexandria—Plague-infected rats																			P

Place		February, 1932	March, 1932	April, 1932	May, 1932	June, 1932	July, 1932
British East Africa (see also table above): Kenya	C	33	22	18	20	39	65
Ecuador:							
Province—							
Chimborazo	C	13		6	10	2	
Loja	C						4
	D						3
Indo-China	C	P	P	9	2	1	2
	D			6	1	1	2
Madagascar:							
Province—							
Ambatolampy	C	40	25				
	D	38	25				
Ambositra	C	90	81	19		2	
	D	81	67	17		2	
Antisirabe	C	45	54	21	26	10	
	D	45	53	21	26	9	
Meavatanana	C		4				
	D		4				
Miarinarivo	C	13	9	6	1	3	
	D	12	9	6	1	3	
Moramanga	C	9	3				
	D	9	3				

Place		February, 1932	March, 1932	April, 1932	May, 1932	June, 1932	July, 1932
Madagascar—Continued.							
Province—Continued.							
Tananarive	C	148	71	42	20	13	
	D	140	70	40	20	12	
Peru	C	2	1	2	5	2	
	D	2					
Department—							
Lambayeque	C					2	
Lima	C						1
	D						1
Lima	C	1	1	2	1	2	
	D	1				1	
Senegal:							
Dakar [5]	C		10				10
	D		5				9
Louga [5]	C				3	1	4
	D				2	1	3
Rufisque [5]	C				3	21	28
	D				3	17	27
Thies [5]	C					8	16
	D					3	13
Yombel [5]	C		9				
	D		5				

[1] Including plague in the United States and its possessions.
[2] A fatal case of plague was reported in Makawao, Maui Island, Hawaii Territory, on Sept. 16, 1932.
[3] An imported case.
[4] 144 cases of plague with 35 deaths were reported in Ovamboland, Southwest Africa, up to July 16, 1932. Antiplague measures have been taken.
[5] Reports incomplete.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX

[C indicates cases; D, deaths; P, present]

Place		Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Apr. 3–30, 1932	May 1–28, 1932	Week ended— June, 1932: 4	11	18	25	July, 1932: 2	9	16	23	30	August, 1932: 6	13	20	27	Sept. 3, 1932
Aden	C		1																
Algeria:																			
Algiers	C						1	1										1	
Constantine Department	C			2	2														
Philippeville	C			1															
Southern Territories	C	2												2					
Brazil:																			
Porto Alegre (alastrim)	C	19	5	8	4			3	2	3		2	2	5		4			
	D		1																
Santos	C											2							
British East Africa: Tanganyika	C	5	P		90	19		4	28	2	29	1		5	62				
	D	2				11		1	5										
British South Africa:																			
Northern Rhodesia	C						4			39	6								
Southern Rhodesia	C		4	7															
Canada:																			
British Columbia	C	17	9						[1]1										
	D	9	3																
Manitoba	C			1									[1]1	1					
Nova Scotia	C	1																	
Ontario	C	21	4	6	24						[1]1				8				
Quebec	C	8							[1]1										
Saskatchewan	C	30	6	8	13		[1]1		[1]2		[1]3		[1]8						
China:																			
Amoy	C	121	45	17	8				1										
	D	44	25	11	6				1										
Canton	C	44	79	81	42	1	3	3	3	1	1	1		1	2		1		1
	D	1	7	1	1														
Foochow	C	P	P	P	P		P		P		P		P		P				
Hankow	C	4	5	3	5														
	D	1																	
Hong Kong	C	51	45	55	24	4	5	2	1	1	1	1			2				
	D	23	28	20	17	4	6	1	1	1	2		1		2				
Manchuria: Dairen	C	1	16	8	2		2	3											
	D			2	2		2	1											
Nanking	C												3						

Shanghai	C	167	102	90	33	3	3												
	D	467	45	35	13	1	2												
Swatow	C	1																	
Tientsin	C	2	8	2	1	2													
	D	1	1																
Chosen (see table below).																			
Dahomey	C		6	5	2		15		9	4	1	3							
	D		1	1			6		1	4		2							
Dutch East Indies	C										6								
Egypt:																			
Alexandria	C		1		2			1				1	3	3	3	1	2		3
Cairo	C											1		1	2		1		2
Suez	C	2	20	4	1														
	D		3																
Finland	C				1									1					
Gold Coast (see table below).																			
Great Britain:																			
England and Wales	C	258	273	315	268	49	36	25	30	22	35	37	10	18	25	16	17	13	10
London	C	136	129	137	144	49	18	15	18	19	28	27	5	11	17	10	10	4	1
London and Great Towns	C	203	236	257	218	37	31	37	23	21	32	32	10	15	21	14	17	12	5
Greece (see table below).																			
Honduras:[1]																			
Ceiba	D	1	2	2															
Puerto Castilla	C	4		4	1			2				1	P						
Tegucigalpa	C	5																	
Tela	C		2	2	1														1
Trujillo	C	35																	
	D	5																	
India	C	9,709	12,040	13,716	13,268	3,418	2,623	2,655	2,950	2,135	1,969	1,916	1,904						
	D	1,896	2,234	2,895	3,283	812	620	729	768	547	521	517	497						
Bassein	C			1												1			
	D			1													1		
Bombay	C	23	27	25	36	7	4	5	6	5	3	9	9	14	9	9	10	12	10
	D	10	12	10	12	4	2	3	4	3	3	6	8	5	6	4	2	8	4
Calcutta	C	102	159	133	93	15	16	21	12	12	12	10	6	9	6	9	5	2	6
	D	54	115	99	67	17	14	8	8	9	10	8	6	7	4	5	4	1	4
Chittagong	C		2		2														
	D		1		1														
Cochin	C	9	3	1									2						
Karachi	C	23	19	29	16	7	5	3	5	1				1			1		1
	D	8	8	9	6	1	1	1	1					1					
Madras	C	15	51	58	47	3	8	5	6	8	8	6	13	11	13	7	16	19	16
	D	4	16	11	11		3	2	3	2	3		2		4		2	2	
Moulmein	C	4	7	1			5								1			1	1
Negapatam	C	1	1		3														
	D				1														
Rangoon	C	418	606	260	66	6	10	5	8	8	7	9	2		1		4		
	D	127	179	88	28	4	4	1	2	2	1	3							
Tuticorin	C	36	14	5	4			1											
	D	8	9	3	5			1											
Vizagapatam	C	3	2							1									

[1] These cases of smallpox are for periods of 2 weeks.

[2] 590 cases of smallpox with 15 deaths were reported in Honduras from July, 1931, to Feb. 16, 1932.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Apr. 3–30, 1932	May 1–28, 1932	Week ended—June, 1932 4	June 11	June 18	June 25	July, 1932 2	July 9	July 16	July 23	July 30	August, 1932 6	Aug. 13	Aug. 20	Aug. 27	Sept. 3, 1932
India (French):																			
Karikal	C	4	19	21	11		2												
	D	4	9	12	7		1												
Pondichéry Territory	C	20	29	22	47		4	2	1	3		5	3	2	5	5	4	7	4
	D	20	20	19	47		4	2	1	3		5	3	2	5	5	4	7	4
Indo-China (see also table below):																			
Pnom-Penh	C	2	1																
Saigon and Cholon	C	145	212	113	113	3	3	3	9	2	1	2	2	2	4		2	2	1
	D	85	174	101	30	3	3	2	9	2	1	2	2	2	4		2	2	1
Iraq:																			
Baghdad	C	4	20	27	21	14	9	3	1		4	1	4	3		1		1	5
	D	4	10	13	8	6	4	2			1			1		1			1
Basra	C	2	11	4	8	2	4	2			4								
	D			4	3	1		1			1	1							
Ivory Coast (see table below).																			
Japan:																			
Kobe	C	1	2	1	10														
	D		1		1														
Nagasaki	C				13	1	1	1											
Osaka Prefecture [3]	C			93	82														
Osaka	C				1														
Taiwan	C	58	1	1															
Mexico:																			
Chihuahua	D	3	1	1	1		5						1	2			1		
Durango	D			1															
Jalisco (State)—Guadalajara	D		1	2	2	1	1												
Mexico City and surrounding territory	C	33	6	16	17	4	7	2	5	6	2	5	3	3	3		6	5	
	D	1		2	1							3		1					
Monterrey	C	8	1	2	2														
Saltillo	D				3	2				2	1					3		4	1
San Luis Potosí	D	2	3	2	2		1												
Torreon	C	2	2	3	3	1	1	1											
	D	3	2	3	3	1			1										

Morocco (see table below).																			
Nigeria	C	46	750	116	1,043				234				123						
	D	2	111	19	333				53				15						
Palestine	C				1							1							
Poland	C				1	1										1			
	D				2	1													
Portugal:																			
Lisbon	C	50	38	26	29	2	5	6	12	1	2	3	4	6	5	4	1	4	1
Oporto	C	14	14	21	24	4	9	8	2	8	7	10	4	5	12	5	1	8	
Salvador	C	85	10																
Sarawak	C											7							
Siam	C		2		1	8	1												
Sierra Leone [4]	D					4	1												
Straits Settlements	C	6	1																
	D		2				1	1	1										1
Sudan (Anglo-Egyptian)	C	8	4	3			1	1	1										
	D	1																	
Syria (see table below).																			
Tunisia: Tunis	C		1																
Turkey (see also table below) Istanbul	C	1		1	1				2										
Union of South Africa.																			
Cape Province	C			P	P	P			P	P	P	P							
Orange Free State	C			P															
Transvaal	C		P	P	P	P	P												
Upper Volta	C				11	1													
	D				1														
On vessels:																			
S. S. Frauenfels at Suez from Calcutta	C		1																
S. S. MacGillivary at Suez from Rangoon	C		[5] 1																
S. S. Tainui at Southampton from New Zealand	C		[5] 1																
S. S. Glenbank at Suez from Aden	C		1																
S. S. Tuscania at Suez from Bombay	C					1													
S. S. Tilawa at Singapore from Amoy and Hong Kong	C					1													
S. S. Marinix Van Ste Aldegonde at Port Said	C									2									
S. S. Ethiopia at Rangoon from Shanghai	C							1											
S. S. Madras City at Kobe from Shanghai	C							1											

[3] 264 cases of smallpox were reported in Osaka Prefecture, Japan, from Mar. 1 to May 28, 1932.
[4] From Mar. 6 to July 9, 1932, 878 cases of smallpox, with 13 deaths, were reported in Sierra Leone.
[5] A suspected case.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		February, 1932	March, 1932	April, 1932	May, 1932			June, 1932			July, 1932			Aug. 1-10, 1932
					1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20	21-31	
Gold Coast	C						2							
Indo-China (see also table above)	C	660	727	568	211	78		61	130	60	72	54	62	36
	D	231	342	241	46	37		27	41	31	20	9	29	16
Ivory Coast	C							19						
	D							1						
Syria: Beirut	C			2							1			

Place		February, 1932	March, 1932	April, 1932	May, 1932	June, 1932	July, 1932
Chosen	C	6	30	55	55	50	
	D	3	9	5	8	4	
Greece	C		1	8			2
Morocco	C	368	308	101	101	27	11
Turkey (see also table above)	C	22	2				3
	D	1					

TYPHUS FEVER

Place		Feb. 7-Mar. 5, 1932	Mar. 6-Apr. 2, 1932	Apr. 3-30, 1932	Week ended— May, 1932				June, 1932				July, 1932					August, 1932			
					7	14	21	28	4	11	18	25	2	9	16	23	30	6	13	20	27
Algeria:																					
Algiers	C	3	7	40	7	23	31		8	5	5	12	33					4	1	5	26
Constantine Department	C		7						1				9		69	24	15	4	1		
Geryville	C	1																			
Oran	C		1					4	10												
Bulgaria	C	66	44	45	10	7	16	5	4	5	8	3	3		7			3			
	D	6	2	9		2	1		1		1										

Chile:																					
Antofagasta	C						1					1									
Iquique	C									1						1					
Santiago	C		1	1				1	1	5	1	1									
Talcahuano	D																	1			
China:																					
Hankow	C		5			1		1			1		1								
Swatow	C	2																			
Tientsin	C					1															
Chosen (see table below).																					
Colombia: Cali	D	1																			
Czechoslovakia (see table below).																					
Egypt:																					
Alexandria	C	1						1	5	2		1								1	
Beheira	C	70	46	14														15			
	D	16		5														1			
Dakahlia	C			1			69														
Gharbieh	C	12		5																	
	D			2																	
Port Said	C								1					1	2		2	1			
Provinces	C	333	676	222	27	35	38	60	139				72	50				33			
	D	25	49	43	6	1	1		10				2	5				2			
Greece (see table below).																					
Guatemala (see table below).																					
Irish Free State:																					
Cork County—Schull	C																1				
Kerry County—Dingle	C																				1
Roscommon County—																					
Leitrim	C						1														
	D						1														
Roscommon	C								1												
Lithuania (see table below).																					
Mexico.																					
Mexico City, including municipalities in Federal District	C	20	7	11	2		5	1	2	4		1	3	3	3	2		2		2	1
	D	12	4	3				2		1		1	1	1	1					2	2
Monterrey	C																		1		
	D																		1		
San Luis Potosi	D	1	1																		
Torreon	C													1							6
Morocco	C	59	29	34	3	7	7	2	13	5	4	4	5			1	1	2	4	1	1
	D	6	6	1						3									1		
Palestine	C	1			1				2	1		1		1							2
Paraguay: Asuncion	D	1																			
Persia	C							123	69			41	54								
	D							4	5			1									
Poland	C	215	255	414	70	106	106	98	83	77	21	23	38	30	18	15	11	9	7	2	6

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, deaths; P, present]

Place		Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Apr. 3–30, 1932	Week ended— May, 1932: 7	May 14	May 21	May 28	June, 1932: 4	June 11	June 18	June 25	July, 1932: 2	July 9	July 16	July 23	July 30	August, 1932: 6	Aug. 13	Aug. 20	Aug. 27
Portugal:																					
Lisbon	C	-----	-----	-----	-----	-----	-----	-----	2	5	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Oporto	C	1	-----	10	3	-----	-----	-----	4	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Rumania	C	296	270	252	61	60	53	60	40	-----	-----	5	13	18	10	15	3	7	-----	-----	-----
	D	28	31	21	8	8	-----	7	5	-----	-----	5	4	1	-----	2	1	1	-----	-----	-----
Tunisia: Tunis	C	24	81	77	26	15	13	1	13	9	6	-----	-----	3	2	3	2	3	1	-----	-----
	D	3	8	4	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Turkey (see table below).																					
Union of Socialist Soviet Republics (see table below).																					
Union of South Africa:																					
Cape Province	C	P	P	P	P	P	P	P	P	-----	P	P	P	P	P	P	-----	P	-----	-----	-----
Natal	C	P	-----	P	P	-----	-----	-----	-----	P	P	P	P	-----	1	-----	-----	-----	-----	-----	-----
Orange Free State	C	P	P	P	P	P	P	-----	-----	-----	P	P	P	P	-----	P	-----	P	-----	-----	-----
Transvaal	C	P	-----	-----	-----	-----	-----	-----	P	-----	-----	-----	-----	P	P	P	-----	-----	-----	-----	-----
Venezuela: Caracas (see table below).																					
Yugoslavia (see table below).																					

Place		January, 1932	February, 1932	March, 1932	April, 1932	May, 1932	June, 1932
Chosen: Seoul	C	-----	5	4	-----	-----	2
	D	-----	1	-----	-----	-----	-----
Czechoslovakia	C	1	-----	-----	1	5	1
Greece	C	4	4	7	1	-----	4
Guatemala	C	18	2	42	5	-----	19
	D	3	-----	3	-----	8	3
Lithuania	C	21	10	32	25	13	16
	D	3	3	3	5	1	-----

Place		January, 1932	February, 1932	March, 1932	April, 1932	May, 1932	June, 1932
Turkey	C	14	22	6	1	-----	4
	D	3	1	3	-----	-----	-----
Union of Socialist Soviet Republics	C	8,670	9,017	9,765	-----	-----	-----
Venezuela: Caracas	D	2	-----	-----	-----	-----	-----
Yugoslavia	C	11	26	5	29	34	-----
	D	-----	2	1	-----	6	-----

YELLOW FEVER

Place		Feb. 7–Mar. 5, 1932	Mar. 6–Apr. 2, 1932	Apr. 3–30, 1932	Week ended— May, 1932				June, 1932				July, 1932			
					7	14	21	28	4	11	18	25	2	9	16	23
Bolivia.[1]																
Brazil:																
Bahia State—Esplanada	C				P											
Ceara State	C			1												
	D			1								2				
Espirito Santo State	C		2	1												
	D		2	1												
Santa Teresa (about 56 miles from Victoria)	D	1														
Parahyba State	C											1				
	D											1				
Pernambuco State	D			1								1	1			1
Dahomey: Porto Novo	C		1													
	D		1													
Gold Coast:																
Avudua	C		1	1												
Cape Coast	C		P													
Tamale	C		1													
Yapei	C	1														
Nigeria	C							1								
Upper Volta	C														1	
	D														1	

[1] About 30 deaths from yellow fever occurred in southern Bolivia during the spring of 1932.

x

UNITED STATES TREASURY DEPARTMENT

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SPECIAL ARTICLE

Functions of the University and Private Foundation in Public Health Education

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

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CONTENTS

PUBLIC HEALTH REPORTS

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PUBLIC HEALTH EDUCATION

THE FUNCTIONS OF THE UNIVERSITY AND OF THE PRIVATE FOUNDATION[1]

By JOHN SUNDWALL, Ph.D., M. D., *Director, Division of Hygiene and Public Health, University of Michigan*

INTRODUCTION

In considering the subject of public health education, certain fundamental questions naturally arise. Why are we interested in public health education? What is it and what does it include? Who are going to be the public health educators? Let us see whether we can answer these questions.

In the modern public health movement the human being has become the center of interest. Formerly the chief interest—in fact, one may say the whole interest—in public health was centered on the environment, i. e., sanitation—the prevention and control of communicable diseases through sewage treatment, garbage disposal, water purification, pasteurization of milk, inspection and control of foods, and eradication of insects. While public health will necessarily always be interested in these machineries concerned with the blocking of the several environmental routes over which communicable diseases travel and are disseminated, and in other matters pertaining to the environment in its relation to disease, the center of its interest has shifted to the human being. In dealing with this new field, the human being, health promotion, i. e., the building up of sound, vigorous, harmoniously developed body machines free from incapacitating defects and illnesses, is becoming the major interest in the new public health. Moreover, we are realizing more and more that the education of the masses in the fundamentals of health promotion and in the prevention and control of communicable and other diseases is our most effectual procedure. In matters pertaining to health promotion and to the personal factors involved in the prevention and control of communicable and other diseases, we can not deal effectively through legislation and regulation. Education is our only recourse; hence, the preponderant importance of public health education in the modern public health movement.

[1] Presented before the National Conference of Social Work, Fifty-eighth Annual Meeting, Minneapolis, June 14-20, 1931.

One may define public health education as that phase of education which is concerned with (1) acquainting the individual with the fundamentals of health promotion and with the principles and practices of prevention and control of communicable and other diseases; (2) inculcating in him an impelling appreciation for both personal and community hygiene; (3) helping him to attain certain effective skills whereby positive physical, emotional, and mental health may be maintained; and (4) developing in him lasting health habits. It is readily seen that this is a "big order" in the new public health movement. The trend is for public health education as a specialty to fall into two main lines of interests and activities. The one is concerned with adult education; the other with child health education. In adult public health education the press is largely used—news items, health columns, feature stories, advertisements, magazine articles, bulletins, posters, and similar means. In a large measure one may say that adult health education is a matter of effective journalism. Public lectures, radio talks, local study groups, demonstrations, and so on, are other procedures utilized in adult public health education. The schools of our land are taking over the problem of child health education. Methods and materials in health teaching for each of the grades, psychologically and pedagogically sound, are being developed rapidly with a view of acquainting the child with the fundamentals of health and with a view of developing within him the desired attitudes, skills, and habits.

Thus, it is seen that public health education is calling for the expert services of two types of specialists—one for adult health education and the other for school health education. However, one can not draw a sharp line between these two specialties; they overlap. Of course, these specialties must be built up on a foundation which consists of an adequate training in those sciences which acquaint one with the "make up" or structure, the "workings" or functions, and the care of the human body machine. In other words, the person who anticipates public health education as a career should have a basic training in anatomy, physiology, hygiene, and public health (including bacteriology and pathology), psychology, and sociology. Training in those subjects which acquaint one with the effective teaching of health for both adults and children should follow this scientific training.

In addition to specialists in adult and child health education, all public health work must be permeated with the idea, function, scope, and importance of public health education. To-day it is just as important for all public health workers to have an appreciation for and a general working knowledge of public health education as it is for them to know about water filtration, sewage treatment, nutrition, mental hygiene, and related subjects.

Hence public health education not only requires experts, but it must become one of the working tools for all public health workers. Already attention has been called to the importance of adequate training, on the part of the public health educator, in those basic sciences which acquaint one with the structure, functions, and care of the human body. The first principle in all public health education is knowledge of the facts involved in the promotion of health and the prevention and control of communicable diseases. Far too much of our public health education of to-day includes opinions and empiricisms. This is due largely to our innate tendency to react emotionally toward our human make-ups, whether in order or out of order. What we feel to be a good health practice we are prone to pass along as a scientific dictum. Moreover, there is that emotional proclivity to adopt and follow the single-track mind in matters pertaining to health. Hence fads and hobbies may permeate health practices and public health education.

The public health educator should and must know the facts—not only the established facts, but also the new facts which are contributed almost daily through research and investigation. The second principle in health education is to know how to present these facts to the public—adult and child—and to present them. Thus it is seen that all the interests and activities of governmental agencies, of private agencies, and of universities in matters pertaining to hygiene and public health are indirectly or directly concerned with public health education.

THE FUNCTION OF THE UNIVERSITY IN PUBLIC HEALTH EDUCATION

More than 50 years ago the wise and far-seeing Disraeli said: "Public health is the foundation on which repose the happiness of a people and the power of a country. The care of the public health is the first duty of a statesman." The university is deeply obligated to the society which supports it, to establish and maintain leadership in all those interests and activities which contribute to the welfare of mankind and to the happiness and power of a country. Surely it has a deep obligation to society in matters pertaining to hygiene and public health.

University methods and the university spirit have contributed, in a large measure, to raising modern medicine to its present high standards. They have influenced for immeasurable good the professions of law, engineering, dentistry, nursing, teaching, and of social work. Likewise the university is meeting its obligation and accepting its responsibility in the field of public health. One many define the function of the university in the modern public health movement in one word—leadership.

Universities should contribute, and are contributing, much to the modern public health movement. Whatever they give is of direct or indirect interest to public health education. The larger universities of our land, with their medical schools and schools or departments of hygiene and public health, their schools of education, and their various departments of sociology, psychology, statistics, economics, and so on, through research and investigation have advanced and are increasing our knowledge relative to the facts of hygiene and public health, how best to utilize these facts, and how best to establish comprehensive and constructive programs of hygiene and public health. These same larger universities have given and are giving valuable service in training public health workers both for general public health work and for the specialties, including public health education. Moreover, they are advancing public health work in general and public health education in particular by seeing that public health subjects are given due consideration in the various professional training courses which are allied with public health, namely, medicine, dentistry, nursing, pharmacy, city managers, engineering, home economics, and education. Furthermore, universities equipped to do so can do much for popular health instruction through extension courses, popular lectures, radio talks, and similar activities.

In universities where schools of education are maintained and in teacher training institutions, public health education is being decidedly advanced through the training of teachers and supervisors of school health education and through acquainting the future classroom teachers with the important rôle that they must play in the school's health education program. In many respects it is this training of special teachers or supervisors of school health education and of class-room teachers in matters pertaining to health that is going to do most for the cause of public health. Practically all colleges and universities are also contributing to public health in general and public health education in particular through general informational courses in college hygiene and through their student health services.

These various services which colleges and universities are giving to public health education directly and to public health work in general may be grouped as follows:

1. Research and investigation:
   a. Laboratory—Bacteriology, physiology, hygiene, etc.
   b. Epidemiological—Field studies relative to the sources and transmission of disease.
   c. Social and economic—Income, housing, poverty, crime, etc
   d. Educational—Methods and materials in health teaching.

2. **Training of public health personnel:**
   a. Public health administrators—Health officers.
   b. Public health specialties—Preventive medicine and dentistry, public health nursing, laboratorians, statisticians, sanitary engineers, sanitary inspectors, epidemiologists, mental hygienists, nutrition workers, public health educators for both adult health education and for school health education, social workers.
   c. Experts for the various interests and specialties in public health—Tuberculosis, venereal diseases, cancer, conservation of vision and hearing, etc.

3. Special and general informational courses in hygiene and public health:
   a. Appropriate special courses in hygiene and public health for students in medicine, nursing, dentistry, pharmacy, engineering, teacher training, governmental administration.
   b. General courses for college students.
   c. Extension work in popular health information—Lectures, radio broadcasts, bulletins, correspondence courses.

4. Students' health service (in association with genuine physical education activities):
   a. Personal attention—Health examinations, prevention and correction of defects, preventive inoculations, care of ill students, etc.
   b. Individual advice—To students when they present themselves at the health service.
   c. Sanitation—Campus and off-campus sanitation, living quarters, restaurants, etc.

Let us now consider each of these services in more or less detail.

1. *Research and investigation.*—The fundamental thing in all public health education is to know the facts relative to health promotion and to the prevention and control of communicable and other diseases. With these facts at our command, the next interest is to know how these facts may be most effectively presented to the public so that the people will use them.

Universities, through productive scientific research and investigation, have contributed much to our knowledge of the nature, sources, and prevention and control of infectious and other diseases. Moreover, they have contributed a great deal to our knowledge of genetics and eugenics, and to the several factors of or approaches to health promotion, including nutrition and mental hygiene. Notwithstanding the many praiseworthy contributions to our knowledge of hygiene and public health, we are still in need of many more facts before we are able to teach the masses just what should make up a comprehensive

and constructive program of healthful living for each of the various age groups which constitute our society. Public health education should always be deeply interested in the promotion of research and investigation and in acquainting itself with the new facts that are brought out.

I have already emphasized the fact that modern public health has shifted its center of interest from the environment to the human being. This has introduced an extremely complex and difficult problem. The new field in public health is *the nature and behavior of man.* Before we can make much progress in this new field we must know a great deal more about it. This complex, difficult, troublesome, and, one is inclined to say sometimes, onerous human being presents at least four facets, each of which must be more thoroughly studied and understood before noteworthy progress may be anticipated in public health work in general and public health education in particular. These facets are the physiological, psychological, sociological, and immunological aspects. It is clearly the function of the university, through research and investigation in the various departments concerned, to add to our knowledge of this complex make-up of man. In the field of immunology, universities have already contributed a great deal; likewise, in its closely related field, the prevention and control of infectious diseases. Much has been added by our universities to our knowledge of physiology and to physiological aspects of a euthenics program. We are just in the beginning of our studies of the psychological make-up of man, including his emotions and mentality. There is much that is yet to be learned relative to society in general, its structure, its many unsolved problems of education, economics, poverty, crime, homicide, suicide, and so on, all of which have a bearing on public health and public health education. Assuredly universities will continue their productive researches and investigations with a view of helping us to understand more fully this new and most important field of public health, the human being. Noteworthy progress in public health education will be dependent on the enhancement of our knowledge of the physiological, psychological, sociological, and immunological aspects and the effective application of this knowledge to the welfare of man.

Again, let me remind you that with this centering of public health interest on the human being, we have become suddenly aware of the need for a new interest and activity in public health—*public health education.* The effective education of the masses in the fundamentals of right living is our one great hope in the modern public health movement. We need to study and to experiment with this new interest and activity with a view of utilizing it more effectively. We know so little about sound and effective health teaching. Therefore, researches and investigations relative to methods and materials in health teach-

ing for both adults (adult public health education) and for children (in school health education) must be fostered and sustained in our universities adequately equipped for this work. Not only must we learn how to teach the new facts, but we have at our command many established facts in hygiene and public health which we are not teaching effectively. At any rate, scientific departments in the university concerned with the discovery and teaching of the facts relative to hygiene and public health should join hands with departments or schools of education with a view of working out sound materials, techniques, procedures, and methods for effective health teaching. Institutions of higher learning, where teacher-training curricula are maintained, have already made important contributions to the psychology and pedagogy of health teaching.

2. *Training of public health personnel.*—No comprehensive and constructive program of public health can be anticipated unless trained personnel are forthcoming who understand the basic facts of hygiene, who are capable of teaching these facts or seeing that these facts are effectively taught, and who are capable of organizing and administering well balanced, constructive, and comprehensive public health programs. It is clearly the obligation and the function of the university equipped for the work to train public health workers. Several of the larger universities have already set up programs of study which train personnel for public health administration and for the several fields and specialties of public health work, such as public health nursing, epidemiology, laboratory work, vital statistics, mental hygiene, sanitary inspection, public health education, and similar specialties.

3. *Special and general informational courses in hygiene and public health.*—Not only should the university, through its department or division of hygiene and public health, provide appropriate courses in hygiene and public health, including public health education, for its professional training courses in medicine, dentistry, nursing, education, city managership, and engineering (this is obvious), but it should also arrange for attractive informational courses in hygiene and public health which will appeal to all the students in the university. I have already pointed out that practically all institutions of higher learning are equipped to do this, and, therefore, should contribute much to public health and public health education. It is this college course in hygiene and public health which should be of great significance in the promotion of hygiene and public health in our land. College students, generally, become the leaders in the society in which they cast their lots later on in life.

At any rate, let us assume that each college graduate has completed an interesting, effective course in college hygiene wherein the factors of health promotion, the principles and practices of prevention and

control of communicable diseases, and the sound application of these factors, principles, and practices to himself, to his family, and to his community have been impressingly and adequately considered. Assuredly he should prove to be an outstanding factor in the promotion and support of public health education and administration in the United States. Let us ever be mindful of the rôle that the college graduate should play and can play in the new public-health education.

In the promotion of popular health instruction, the university can be of great assistance through its extension division. I have in mind the productive work that the extension division of the University of Oklahoma and that other universities are doing. This type of work may be carried on in conjunction with outside voluntary health agencies. In Michigan we have the joint committee on public health education. It is made up of representatives from state-wide voluntary health agencies and organizations, from official health and educational agencies and from other agencies or institutions which have something to contribute to the interests and activities of this joint committee. Here we have a pooling of resources. The work of the committee is directed by the director of the extension division at the University of Michigan. The magnitude of the work of the joint committee is seen in the following excerpt from its annual report, July 1, 1930, to July 1, 1931:

Lectures in high schools	464
Lectures to parent-teacher associations	48
Total	512
Aggregate audience	150,000

Popular lectures, radio talks, demonstrations, and correspondence courses on the fundamentals of hygiene and public health should be offered by many colleges and universities.

4. *Student health service.*—Each college or university should maintain an effective student health service. The health service should function adequately with regard to personal attention, individual health advice, and sanitation. Periodic health examinations, prevention and correction of defects, care and treatment of ill students, immunization, health promotion, including mental hygiene and nutrition, and similar activities, should make up the important interests and activities of the "personal attention" aspect of the health service. Each student should be advised relative to his own particular health problems. Sanitation in all its various phases should be enforced. Not only is the student immeasurably benefited directly by an effective health service, but such a service should serve as a demonstration or teaching unit of what should constitute effective health machineries in a community. The health service should be

regarded as the practical phase or laboratory aspect of the regular teaching courses in hygiene and public health.

During the school year 1930–31 more than 80,000 visits were made by students at the University of Michigan health service. Surely effective students' health services maintained in all similar institutions will contribute much to effective public health work, including public health education, in the United States. Students who graduate from colleges and universities where effective health teaching is emphasized, and where health services are maintained, will want to see to it that these health machineries are provided for the communities in which they are to live.

THE FUNCTION OF NONOFFICIAL HEALTH AGENCIES IN PUBLIC HEALTH EDUCATION

I was also asked to speak on the function of private foundations in public health education. I am taking the privilege of including other nonofficial health agencies as well, because their relationships to public health education are similar to those of the private foundations.

In general, we may group nonofficial health agencies into three general classes:

1. Private foundations or funds.
2. Voluntary health organizations—local, State, and National.
3. Insurance companies and commercial firms.

1. *Private foundations.*[2]—One of the outstanding social phenomena of this age has been the progression of a series of great foundations, the funds from which are utilized for social betterment in general and for public health in particular. Time will permit the enumeration of only a few of the many commendable agencies established in the United States since the movement was begun by Andrew Carnegie in 1886. We are all more or less familiar with the Carnegie Foundation, the Rockefeller Foundation, the Commonwealth Fund, the Duke Foundation, the Milbank Memorial Fund, the Children's Fund of Michigan, the Rosenwald Fund, the W. K. Kellogg Foundation, the Macy Foundation, the Elks National Foundation, the Elizabeth McCormick Memorial Foundation, and many others. Evans Clark, director of the Twentieth Century Fund, has listed 128 of these distinct or quasi foundations, giving their forms of capitalization, their methods of operation, and their fields of action. His classification of the activities of these foundations include the following: Individual aid, 48; education, 36; scientific research, 33; child welfare, 26; health, 22; social welfare, 18; international relations, 3; esthetics, 9; industry

[2] See "The Foundation; Its Place in the American Life," By Frederick P. Keppel, MacMillan Co.

and business, 7. Twenty-nine more are divided among 16 other designated fields.

2. *Voluntary health organizations.*—We are all familiar with at least some of the nation-wide voluntary associations concerned with the promotion and support of public health. At any rate, we know, or at least should know, of the valuable contributions to public health which have come and are forthcoming from the various associations which make up the National Health Council, viz, the American Child Health Association, American Heart Association, American Public Health Association, American Red Cross, American Social Hygiene Association, American Society for the Control of Cancer, National Committee for Mental Hygiene, National Committee for the Prevention of Blindness, National Organization for Public Health Nursing, and National Tuberculosis Association. Several of these have State and local branches. Other important National organizations such as the American Federation of Organizations for the Hard of Hearing, American Recreation Association, Parent-Teacher Associations, National Safety Council, and chambers of commerce are actively promoting health work. I realize that I am not naming them all. Assuredly, one is impressed with that long list of National associations listed in the Social Work Year Book of 1929, which are directly or indirectly interested in the promotion of public health work.

3. *Insurance companies and commercial firms.*—Many of the large life insurance companies are making creditable contributions to public health education, the names of some having become especially associated with their valuable and effective work in public health education. Many large commercial firms are also effectively contributing to health education in various ways, such as by means of attractive posters, creditable public health literature, bulletins, and similar means.

The subcommittee on the relation of official and nonofficial agencies in public health organization of the White House Conference on Child Health and Protection[3] classifies the type of service rendered by nonofficial agencies into seven major types:

A. Support of the work of other agencies or individuals by—

1. Grants for research.
2. Grants for training of personnel.
3. Grants for actual service.

B. Operating activity in the form of—

4. Conduct of research.
5. Standardization and consultation.
6. Propaganda and preparation of material for popular health instruction.

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[3] Report of Committee A, Public Health Organization, Section III, White House Conference on Child Health and Protection.

C. Director service to the public—

7. Operation of nursing and clinical services and health education.

From twenty-five to thirty million dollars a year are now contributed to the public health movement in the United States by these nonofficial agencies along the seven major types of activities just named. This sum is approximately one-quarter of the estimated total amount spent annually for public health in the United States. We may assume that public health education is tied up with each of the seven major types of service enumerated above which voluntary or nonofficial health agencies are contributing to public health in the United States. It is, therefore, impossible to estimate just how much of the twenty-five to thirty millions of dollars contributed each year by these nonofficial health agencies to public health work in the United States goes directly or indirectly to public health education. Certainly the proportion which goes to health propaganda and education is of considerable magnitude. The subcommittee of the White House conference to which I have referred gives $4,358,726 as the amount which was contributed by several nonofficial health agencies to popular health instruction in the United States in 1929.

I have purposely gone into this in much detail relative to the contributions of foundations, associations, insurance companies, and commercial firms with a view of helping you to appreciate more fully and more acutely the important rôle that these agencies have played and are now playing in the promotion and support of public health in general and public health education in particular in the United States. The functions of nonofficial health agencies in public health are seen in the seven types of services already enumerated.

From the foregoing discussion it is readily seen that in several respects the functions of the university and of nonofficial health agencies are similar. So closely akin are some of these functions that universities and nonofficial health agencies have joined hands in their interests and activities to render the highest type of leadership service to public health work and public health education. Thus, the one serves as a complement to the other. Certainly many of the contributions of the university to public health along the lines of research and investigation, training of public health personnel, including public health education, and in similar ways, would not have been or be forthcoming were it not for the financial support given to the university by nonofficial health agencies.

OFFICIAL VERSUS NONOFFICIAL HEALTH AGENCIES

The outstanding function of the university and the nonofficial health agency in public health education is that of leadership. They are the discoverers, the explorers, the experimenters, the frontiers-

men, the architects, the builders, the prophets, and the teachers of the new public health. Their objectives and efforts are to find out new facts relative to hygiene and public health, to determine the best methods whereby these new facts and the established facts may be made applicable to and utilized by society as a whole, and then to teach society to want and to support interests and machineries whereby these facts may be made available for the common good of society. Nonofficial health agencies and universities realize that, in time, as a result of their intelligent, forceful, and persistent joint efforts in promoting public health in all its completeness, the majority of individuals making up a social unit will understand the need for, and, therefore, will want to establish and maintain, by means of laws and taxation, effective official public health departments. This is the goal of nonofficial health agencies and universities in their relations to public health. When the masses are ready to take over and support a health demonstration or project which has been promoted by a nonofficial health agency, then the latter should withdraw, generally speaking, at least in theory, with a view of promoting some neglected or newly discovered field in public health until the public, in turn, is ready to take this over, and so on, ad infinitum. The unexplored fields of public health are many, indeed. I should like to see the foundations or some other of the nonofficial agencies go into the matter of local government—township, village, municipal. The welfare and progress of official public health is greatly dependent on local government. On the whole, one may say that local government, with its senile charters and laws and its untrained and emotional administrators, is not conducive to the initiation and support of meritorious official public health work. Why can not demonstrations and other effective educational procedures be set up with a view of helping the masses to understand, appreciate and want efficient local government? Assuredly, this would do much to promote official public health in the United States.

We need much more information relative to adult health education. At present this field develops sluggishly and ineffectively. We are in dire need of newer and more effective methods and materials in popular adult health instruction. This is an all-important field for investigation. I sincerely trust that some nonofficial health agency will help us out in this matter.

Attention has already been called to the supreme importance of health education in our public schools. Seeing that each school or school district in the land is administered by a superintendent or principal who understands and appreciates effective school health programs, is taught by classroom teachers who are intelligently and actively interested in the normal growth and development of the little wards entrusted to them, and has in its service an adequately

trained supervisor of health education, should be of paramount concern to all who are interested in the promotion of public health in the United States. Obviously this can be brought about best through the establishment and support of professorial chairs of health education in our teacher-training institutions—normal schools, normal colleges, and schools of education in universities. In this field nonofficial agencies can render a valuable service to public health. And so the need for the services of nonofficial health agencies goes on without end.

Let us always bear in mind that intelligent nonofficial health programs, of one kind or another, depending on local needs, may well continue in communities where satisfactory official public health programs are maintained. The former can and should serve as stimulus to and as an auxiliary of the latter. Both can mutually coexist. One may well compare the interrelationships of the interests and activities of the official and nonofficial health agencies to those of the State-supported institutions of higher learning and the endowed colleges and universities. No intelligent person would seriously advocate the abolition of a university, supported by a foundation, in a State because some difficulties had arisen between it and the State university.

Thus it is seen that the functions of the universities and of nonofficial agencies in the field of public health are extensive and important; and our concern should not be in the limitations of these functions but rather in their aggrandizement.

We all realize keenly and impatiently the social lag in matters pertaining to public health. Society moves more slowly here than in any other of its interests and activities. This is due to the fact that most people react almost wholly emotionally to health and disease. It is difficult for the masses to take an intelligent attitude toward their body machines, in order or out of order. Therefore, the millenium of official public health is incomprehensively far away. For an inconceivably long time to come we shall need the intelligent investigation, stimulus, direction, and support of nonofficial health agencies. It is difficult, indeed, for us even to speculate as to just how far we have been advanced in all matters pertaining to public health as the direct result of the intelligent and resourceful efforts and contributions of nonofficial health agencies. Assuredly the profoundest gratitude of the American people is due them. That they may continue in their efficient functions is my sincerest wish.

In dealing with the place of nonofficial health agencies in the special field of public health education, as well as in other branches of public health, we should not lose sight of the fact that efficient local, State, and Federal official health organizations are most necessary in public-health work, for it is by means of the official health agencies that the

actual sanitary knowledge and modern public health methods will be applied. There is an increasing conviction that the protection of the public health is a governmental function and duty, and that an adequately trained whole-time personnel, properly organized, is necessary for the accomplishment of the task.

Attainment and maintenance of conditions in sanitation and hygiene necessary for the mental and physical well being of a people, such as safe water and milk supplies, proper housing, hours of labor, efficient vaccination against and the control of the communicable diseases, depend not only upon education and voluntary action but largely upon police powers exercised by the government—local, State, and Federal. The very corner stone of effective public health work is the local health officer; and that office must be made one of sufficient dignity by proper remuneration and certainty of tenure to attract the right type of young man, and facilities which now exist in only a few schools should be given in every medical school to educate men for these positions.

It is apparent and inevitable that as official health agencies are established or are augmented as a result of the activities of nonofficial health agencies, there will be, for a time, some overlapping of functions. It is in this overlapping zone that misunderstandings, frictions, and even antagonisms develop. Particularly is this true in those types of services which have to do with actual direct services to the public—demonstrations, clinics, nursing, and similar services. Moreover, representatives of voluntary health agencies engaged in the promotion of special fields of public health are likely to overemphasize and overpromote their particular interests to such an extent that an unbalanced program of public health may result in the communities concerned. Again, when a voluntary health agency has given birth to a special health activity and has been solely responsible for its nourishment, growth, and development, it is difficult, indeed, for it to give away its child. While we can recount many instances of friction between official and nonofficial health agencies, most of them are due to our human instinctive and emotional make-ups. As I view it, these controversies, impediments, and obstructions will vanish gradually, providing we pay more attention to the following:

1. Full time, adequately trained health officers must be employed in all official public health units. This training should include a comprehensive survey of the whole field of public health and of the functions of nonofficial agencies in public health. Each physician who anticipates public health administration as a career should devote at least one year to study of public health in a recognized school of hygiene and public health. A minimum of at least one year of study is required in order for the physician to get a comprehensive view of the modern public health and human conservation movement with all

the psychological, sociological, and economic factors involved. We can anticipate little progress in obviating misunderstandings and frictions between official and nonofficial health agencies as long as part time untrained health officers are employed.

2. Representatives of nonofficial health agencies should likewise be trained with a view of possessing a working knowledge of the entire field of public health. They should know the various factors of or approaches to health promotion and the relative values of these factors for each of the age groups. They should be familiar with the principles and practices of prevention and control of communicable diseases in general. In other words, each representative of nonofficial health agencies should understand just what is meant by a well balanced, comprehensive, and constructive program of public health. It is just as important for representatives of nonofficial health agencies to know the field of public health as it is for public health workers attached to official health departments. At any rate, the nonofficial health agency representative, adequately trained in the two major groups of interests and activities of modern public health—(*a*) health promotion for the various age periods making up our society and (*b*) the principles and practices of disease prevention and control—should be able to comprehend much more clearly the relation of his particular interests to a balanced public health program, and, therefore, be able to cooperate much more effectively with official public health agencies.

In many respects one might even expect a higher degree of training on the part of representatives of nonofficial health agencies. As a rule, their positions are more secure, and they are usually better paid. Assuredly, if they are to function efficiently as the prophets, the architects, and the builders of the new public health, they should have the highest degree of training in public health in order to help and direct society to establish comprehensive, balanced, and constructive programs of public health.

At times we are constrained to feel that some of our nonofficial health agencies have not given this matter of trained personnel the attention which it merits. Here they should establish a genuine leadership.

3. With an adequately trained personnel making up the official health departments and adequately trained representatives of nonofficial health agencies working together, then effective cooperation may be anticipated. Trained men who see clearly the entire field of public health cooperate well. The well-trained public health officer should be the pivot around which revolve the interests and activities of both official and nonofficial health agencies. It is he who should be held responsible for a smooth running public health machinery in a community.

In conclusion, I want to pay my tribute to the National Conference of Social Workers. In this day and age one can no longer differentiate between public health and social work. In certain fields, a public health worker in the modern public health movement must be a social worker, and an effective social worker must be a public health worker. I am constrained to feel that, in the future, these two interests and activities will be more fully amalgamated. At any rate, great credit is due the various agencies which make up your conference for the present achievements in public health work in general and public health education in particular.

IMMUNIZATION OF SCHOOL CHILDREN IN KANSAS CITY, MO.

The health department of Kansas City, Mo., with the cooperation of the board of education, has conducted a campaign against diphtheria and smallpox. The following table shows what can be accomplished by intelligent work continued over several years. In 1932 more than 85 per cent of the pupils in the kindergarten and in the first four grades were immunized against diphtheria, and 88 per cent of these pupils were vaccinated against smallpox.

	1930	1931	1932
Number of pupils in kindergarten and first four grades	43, 519	43, 604	43, 016
Number immunized against diphtheria (toxin antitoxin)	32, 218	34, 686	36, 718
Per cent immunized against diphtheria	74. 0	79. 5	85. 4
Number vaccinated against smallpox	----------	36, 607	37, 898
Per cent vaccinated against smallpox	----------	84. 0	88. 1

COURT DECISION RELATING TO PUBLIC HEALTH

Bovine tuberculosis eradication law held valid.—(Minnesota Supreme Court; State ex rel. Benson, Atty. Gen., et al. *v.* Board of Com'rs of Pine County et al., 243 N. W. 851; decided July 15, 1932.) A 1923 statute (ch. 269) entitled "An act relating to the testing of cattle for tuberculosis and authorizing county boards to appropriate money therefor," authorized a county board, upon the petition of a majority of the cattle owners in the county, to provide for the tuberculin testing of cattle. Chapter 360 of the 1931 laws entitled "An act to amend Mason's Minnesota Statutes of 1927, sections 5416, 5417, and 5418, relating to the eradication of bovine tuberculosis," gave discretionary authority to a county board to act without a petition being filed and made it mandatory for it to act where a petition had been filed. The 1931 law also provided that, where a petition had been filed under the

old law and the county board had not acted, the board was required to act upon the filing of a petition by 100 or more resident cattle owners.

A mandamus proceeding was instituted against the commissioners and auditor of Pine County to compel them to comply with this 1931 statute by contracting with the State livestock sanitary board for the testing of all cattle in the county. The trial court overruled a demurrer to the petition, and, upon appeal from such order, the constitutionality of the amendatory statute was questioned. The supreme court pointed out that it had held the original 1923 law constitutional, and that, respecting the contention in the instant case that the affairs of counties were being unconstitutionally dealt with, the argument proceeded upon a nonexistent basis. Said the court:

> * * * the subject matter of both acts is not regulation of counties or county affairs. Rather it is the prevention, so far as possible, of tuberculosis in cattle and its spread to human beings. The counties and their officers are made use of by the State not to effect any local or county purpose but as agencies in the performance of its own paramount governmental duty to protect public health. * * * The subject matter of the statute is a State affair, its purpose a State purpose. Nothing purely local to county or other municipality is dealt with.

Another contention made by appellants and answered adversely by the court was that the 1931 act violated the provision of the State constitution that "no law shall embrace more than one subject, which shall be expressed in its title."

With regard to another point raised by appellants, namely, that the 1931 statute vested resident taxpayers with power to govern the corporate action of the county because the county board was required to act upon the filing of the requisite petition, the court held that the act did not delegate legislative power, saying:

> * * * We repeat that it is not a county affair that is being dealt with. It is a State affair. That the legislature has not made tuberculin tests everywhere mandatory is not for lack of power but for lack of the will. * * *
>
> We have here a general law applicable throughout the State. * * * It applies in one county precisely as in another. The law is everywhere in effect as law. But it does not become the duty of a given board of county commissioners to proceed until they have the petition required. It is no objection, on constitutional grounds, that procedure under the law is so conditioned. Nor is there delegation of legislative power. The law-making power has been fully exercised. What is left is for executive power, which must proceed upon the conditions and in the manner declared by the law. In that is nothing strange or offensive to constitutional restrictions. * * *

DEATHS DURING WEEK ENDED SEPTEMBER 17, 1932

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Sept. 17, 1932	Corresponding week, 1931
Data from 85 large cities of the United States:		
Total deaths	6,504	7,510
Deaths per 1,000 population, annual basis	9.3	10.9
Deaths under 1 year of age	568	737
Deaths under 1 year of age per 1,000 estimated live births [1]	47	57
Deaths per 1,000 population, annual basis, first 37 weeks of year	11.2	12.1
Data from industrial-insurance companies:		
Policies in force	70,636,403	74,883,159
Number of death claims	12,516	12,059
Death claims per 1,000 policies in force, annual rate	9.3	8.4
Death claims per 1,000 policies, first 37 weeks of year, annual rate	9.7	9.9

[1] 1932, 81 cities; 1931, 77 cities.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended September 24, 1932, and September 26, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended September 24, 1932, and September 26, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Sept. 24, 1932	Week ended Sept. 26, 1931	Week ended Sept. 24, 1932	Week ended Sept. 26, 1931	Week ended Sept. 24, 1932	Week ended Sept. 26, 1931	Week ended Sept. 24, 1932	Week ended Sept. 26, 1931
New England States								
Maine	1	5				15	0	1
New Hampshire		4				1	0	0
Vermont						1	0	0
Massachusetts	19	30		4	20	18	3	4
Rhode Island	3	1			5	6	0	0
Connecticut	3	3	3		4	5	0	2
Middle Atlantic States.								
New York	49	55	[1] 7	[1] 6	49	55	7	5
New Jersey	36	15	4		44	10	0	4
Pennsylvania	62	68			46	91	3	6
East North Central States:								
Ohio	51	80		10	31	28	2	1
Indiana	61	19	26	6	11	12	4	1
Illinois	82	63	7	206	9	85	0	11
Michigan	13	20	1		26	13	0	8
Wisconsin	9	10	15	10	16	8	1	0
West North Central States.								
Minnesota	10	10	2	2	11	2	3	0
Iowa	16	9			4	2	1	2
Missouri	63	55		1	1		2	0
North Dakota	2	2			5		0	4
South Dakota	2	1			3	1	0	0
Nebraska	11	14			10		0	0
Kansas	18	6	3		8	6	0	0
South Atlantic States.								
Delaware	6	2					0	0
Maryland [3]	20	40	11	8	8	2	0	1
District of Columbia	3	11	1	2	1	1	0	1
Virginia	48				10		0	
West Virginia	38	28	13	12	9	5	1	0
North Carolina [3]	67	129	5	1	16	4	1	0
South Carolina	39	28	209	113	10	7	0	0
Georgia [3]	50	56	15	6	1	2	0	0
Florida [3]	24	17	1				0	0
East South Central States:								
Kentucky	81	147				10	1	0
Tennessee [4]	103	74	7	2	1		3	4
Alabama [3]	80	95	8	1	1	1	1	1
Mississippi	39	112					0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended September 24, 1932, and September 26, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Sept 24, 1932	Week ended Sept. 26, 1931	Week ended Sept. 24, 1932	Week ended Sept. 26, 1931	Week ended Sept. 24, 1932	Week ended Sept. 26, 1931	Week ended Sept. 24, 1932	Week ended Sept. 26, 1931
West South Central States:								
Arkansas	43	28	8			2	1	0
Louisiana	24	44	8		1	3	0	2
Oklahoma [4]	74	95	15	12	1	1	0	0
Texas [3]	86	22	43	2	1		1	0
Mountain States:								
Montana	2	2			45	8	0	0
Idaho	13	2			2		1	0
Wyoming					2	1	0	0
Colorado	4	10			4	6	2	0
New Mexico	8	2			3	1	0	0
Arizona		4		3		1	0	0
Utah [2] [4]				5	2		0	1
Pacific States:								
Washington	2	7			7	8	1	0
Oregon	1	1	6	15	31	7	0	0
California	49	56	252	23	18	37	2	6
	1,421	1,482	670	510	472	461	41	65

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Sept. 24, 1932	Week ended Sept. 26, 1931	Week ended Sept. 24, 1932	Week ended Sept. 26, 1931	Week ended Sept. 24, 1932	Week ended Sept. 26, 1931	Week ended Sept. 24, 1932	Week ended Sept. 26, 1931
New England States:								
Maine	5	7	9	6	0	0	13	4
New Hampshire	2	2	10	0	0	0	0	3
Vermont	0	4	2	3	0	0	0	0
Massachusetts	2	105	94	75	0	0	6	7
Rhode Island	0	8	12	9	0	0	0	1
Connecticut	0	81	20	2	0	0	5	5
Middle Atlantic States:								
New York	18	327	141	124	0	0	51	54
New Jersey	51	93	56	35	0	0	10	16
Pennsylvania	156	49	160	143	0	0	100	59
East North Central States:								
Ohio	0	14	176	139	11	1	61	183
Indiana	0	3	70	18	0	3	17	16
Illinois	8	62	155	110	5	11	49	53
Michigan	5	138	92	60	0	1	10	22
Wisconsin	2	70	25	21	0	4	6	3
West North Central States:								
Minnesota	2	62	37	39	0	3	9	19
Iowa	1	9	20	13	2	8	7	8
Missouri	0	0	61	21	0	5	13	18
North Dakota	0	2	2	10	0	1	8	5
South Dakota	0	1	9	1	0	1	0	5
Nebraska	0	1	21	4	0	0	1	1
Kansas	5	1	48	20	0	3	7	14
South Atlantic States:								
Delaware	0	0	6	1	0	0	4	1
Maryland [3]	2	5	28	33	0	0	31	53
District of Columbia	2	2	5	9	0	0	2	3
Virginia	3		50		0		39	
West Virginia	3	3	44	24	1	0	67	68
North Carolina [3]	2	5	70	75	0	0	21	41
South Carolina	2	0	7	18	0	2	27	49
Georgia [3]	0	4	31	25	2	0	38	33
Florida [3]	0	1	4	3	0	0	7	12
East South Central States:								
Kentucky	2	2	86	31	0	0	98	61
Tennessee [4]	2	7	56	65	0	3	40	82
Alabama [3]	2	1	67	28	0	1	19	31
Mississippi	0	2	15	21	0	2	5	27

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended September 24, 1932, and September 26, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Sept. 24, 1932	Week ended Sept. 26, 1931	Week ended Sept. 24, 1932	Week ended Sept. 26, 1931	Week ended Sept. 24, 1932	Week ended Sept. 26, 1931	Week ended Sept. 24, 1932	Week ended Sept. 26, 1931
West South Central States:								
Arkansas	0	1	11	14	1	1	27	15
Louisiana	3	0	6	11	0	0	7	56
Oklahoma [5]	2	0	18	31	0	1	27	52
Texas [3]	0	0	35	30	0	1	33	20
Mountain States:								
Montana	0	5	8	9	0	2	6	10
Idaho	0	0	2	2	0	0	1	5
Wyoming	0	0	2	5	0	1	1	1
Colorado	0	0	41	11	1	1	29	7
New Mexico	1	2	9	2	0	0	9	5
Arizona	1	0	2	5	0	0	8	8
Utah [2,4]	0	1	4	3	0	0	2	2
Pacific States:								
Washington	5	4	20	42	3	6	7	4
Oregon	1	1	6	9	0	6	1	8
California	3	10	62	62	4	6	5	8
	293	1,095	1,915	1,422	30	/5	932	1,158

[1] New York City only.
[2] Week ended Friday.
[3] Typhus fever, week ended Sept. 24, 1932, 27 cases: 1 case in North Carolina, 4 cases in Georgia, 1 case in Florida, 8 cases in Alabama, and 13 cases in Texas.
[4] Rocky Mountain spotted or tick fever, week ended Sept. 24, 1932, 2 cases: 1 case in Tennessee and 1 case in Utah.
[5] Figures for 1932 are exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
July, 1932										
Illinois	7	116	42	15	629	--------	22	342	20	150
August, 1932										
Alabama	4	109	24	355	1	79	4	71	0	134
Idaho	1	7	--------	--------	2	--------	0	7	7	20
Illinois	18	148	35	11	122	1	40	303	5	229
Louisiana	3	84	31	161	21	21	9	30	4	169
Montana	1	1	8	--------	202	--------	0	20	17	23
Nevada	--------	--------	3	--------	1	--------	0	7	0	7
Oklahoma [1]	3	127	54	234	2	20	2	41	13	273
South Carolina	--------	88	437	1,502	65	391	12	14	0	178
South Dakota	2	16	10	--------	4	--------	4	10	0	11
Washington	1	12	24	--------	30	--------	3	56	23	30
West Virginia	2	77	70	--------	125	1	10	59	0	277

[1] Exclusive of Oklahoma City and Tulsa.

July, 1932

Illinois:	Cases
Chicken pox	332
Dysentery (amebic)	7
Dysentery (bacillary)	14
German measles	10
Lead poisoning	2
Lethargic encephalitis	3
Mumps	80
Ophthalmia neonatorum	6
Paratyphoid fever	8
Psittacosis	3
Puerperal septicemia	9
Rabies in animals	5
Septic sore throat	8
Tetanus	7
Trachoma	4
Tularaemia	1
Undulant fever	13
Vincent's angina	28
Whooping cough	1,125

August, 1932

	Cases
Actinomycosis:	
Illinois	1
Anthrax:	
South Dakota	6
Chicken pox:	
Alabama	4
Idaho	1
Illinois	111
Louisiana	1
Montana	3
Nevada	1
Oklahoma [1]	5
South Carolina	61
South Dakota	5
Washington	53
West Virginia	13
Dengue:	
Alabama	1
Diarrhea:	
South Carolina	632
Dysentery:	
Illinois (amebic)	3
Illinois (bacillary)	109
Louisiana	4
Nevada	1
Oklahoma [1]	14
German measles:	
Illinois	8
Montana	1
Washington	4
Hookworm disease:	
Louisiana	10
South Carolina	233
Impetigo contagiosa:	
Illinois	5
Montana	7
Oklahoma [1]	3
Lead poisoning:	
Illinois	3
Leprosy:	
Louisiana	2
Lethargic encephalitis:	
Alabama	4
Illinois	27
Montana	1
South Carolina	1
Washington	1
Mumps:	
Alabama	40
Idaho	16
Illinois	47
Louisiana	2
Montana	4
Nevada	1
Oklahoma [1]	11
South Carolina	117
South Dakota	2
Washington	15
West Virginia	1
Ophthalmia neonatorum:	
Illinois	9
Louisiana	1
Oklahoma [1]	1
South Carolina	19
Paratyphoid fever:	
Illinois	9
Louisiana	2
South Carolina	19
Puerperal septicemia:	
Illinois	2
Rabies in animals:	
Illinois	5
Louisiana	4
South Carolina	7
Washington	1
Rocky Mountain spotted or tick fever:	
Montana	2
Nevada	1
Scabies:	
Montana	6
Septic sore throat:	
Illinois	12
Montana	13
Oklahoma [1]	24
South Dakota	1
Washington	1
Silicosis	
Montana	4
Tetanus.	
Illinois	4
Louisiana	8
Oklahoma [1]	1
South Carolina	1
South Dakota	4
Washington	1
Trachoma.	
Illinois	2
Louisiana	1
Oklahoma [1]	3
South Dakota	1
Tularaemia:	
Alabama	1
Montana	2
Nevada	6
Washington	1

[1] Exclusive of Oklahoma City and Tulsa

	Cases
Typhus fever:	
Alabama	26
Louisiana	5
South Carolina	8
Undulant fever:	
Alabama	4
Idaho	1
Illinois	7
Louisiana	3
Washington	1
Vincent's angina:	
Illinois	46
Vincent's infection:	
Washington	2

	Cases
Whooping cough:	
Alabama	74
Idaho	4
Illinois	690
Louisiana	16
Montana	108
Nevada	15
Oklahoma [1]	31
South Carolina	138
South Dakota	47
Washington	26
West Virginia	134

WEEKLY REPORTS FROM CITIES

City reports for week ended September 17, 1932

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded, and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1923 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	0	0	1		0	0	0	3
New Hampshire:								
Concord	0	0	1		0	0	0	1
Nashua	0	0	0		0	0	0	0
Vermont:								
Barre	0	0	0		0	0	0	0
Burlington	6	0	0		0	0	0	0
Massachusetts:								
Boston	5	13	8	1	0	7	7	12
Fall River	0	1	3		0	1	0	0
Springfield	1	1	0		0	0	0	1
Worcester	0	2	0		0	0	0	1
Rhode Island:								
Pawtucket	0	0	0		0	0	0	0
Providence	0	2	0		0	2	2	1
Connecticut:								
Bridgeport	0	2	0		0	3	0	1
Hartford	0	1	2	1	0	1	0	1
New Haven	0	0	0	1	0	1	2	1
MIDDLE ATLANTIC								
New York:								
Buffalo	2	6	3	1	0	1	0	7
New York	24	63	16	8	8	28	39	54
Rochester	1	2	1		0	0	0	0
Syracuse	1	0	0		0	0	0	2
New Jersey:								
Camden	1	1	5		0	0	0	1
Newark	2	6	3	2	0	5	5	1
Trenton	1	0	1		0	0	0	1
Pennsylvania:								
Philadelphia	5	18	2	1	0	2	3	10
Pittsburgh	3	9	3	1	1	2	17	9
Reading	0	1	1		0	0	0	1

[1] Exclusive of Oklahoma City and Tulsa.

City reports for week ended September 17, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	0	4	2		0	0	0	4
Cleveland	7	14	2	2	0	1	2	4
Columbus	0	2	1		0	8	0	1
Toledo	1	3	1		0	2	0	1
Indiana:								
Fort Wayne		1						
Indianapolis	1	3	0		0	2	9	5
South Bend	0	0	0		0	0	0	0
Terre Haute	0	0	0		0	0	0	1
Illinois:								
Chicago	20	48	14	2	1	5	3	30
Springfield	0	0	1		0	1	0	1
Michigan:								
Detroit	1	27	9	1	0	7	0	5
Flint	1	1	0		0	0	1	0
Grand Rapids	0	0	0		0	0	3	1
Wisconsin:								
Kenosha	3	0	1		0	2	0	0
Milwaukee	9	5	0		0	0	5	1
Racine	0	0	0		0	0	0	1
Superior	1	1	0		0	1	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth	0	0	0		0	0	1	0
Minneapolis	0	11	4		0	1	1	2
St Paul	4	4	2		0	0	2	0
Iowa:								
Des Moines	0	0	1			0	0	
Sioux City	0	1	1			1	0	
Waterloo	0	0	0			0	0	
Missouri								
Kansas City	0	2	2		0	0	0	1
St. Joseph	0	0	8		0	0	0	1
St. Louis	1	16	4			1	3	4
North Dakota.								
Fargo	0	0	0		0	0	0	0
Grand Forks	0	0	0			0	0	
South Dakota:								
Aberdeen	0	0	0			0	0	
Nebraska:								
Omaha	0	5	5		0	0	1	1
Kansas								
Topeka	0	1	0		0	3	2	0
Wichita	0	1	1		0	0	0	1
SOUTH ATLANTIC								
Delaware:								
Wilmington	0	1	0		0	0	0	0
Maryland:								
Baltimore	3	11	2	1	1	0	3	10
Cumberland	0	1	0		0	0	0	0
Frederick	0	0	0		0	0	0	0
District of Columbia:								
Washington	1	8	0		0	2	0	12
Virginia:								
Lynchburg	0	1	0		0	0	0	0
Norfolk	0	1	0		0	0	0	2
Richmond	0	9	2		0	0	0	2
Roanoke	0	3	1		0	0	0	0
West Virginia:								
Charleston	0	0	1	1	0	0	0	0
Huntington	0		2		0	0	0	0
Wheeling	1	1	0		0	0	0	1
North Carolina:								
Raleigh	0	2	1		0	0	0	0
Wilmington	0	0	0		0	0	0	1
Winston-Salem	0	3	0		0	2	0	2

City reports for week ended September 17, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
SOUTH ATLANTIC—con.								
South Carolina:								
Charleston	0	1	0	4	0	0	0	1
Columbia	0	1	1		0	0	0	3
Greenville	1	0	0		0	0	0	0
Georgia:								
Atlanta	0	4	0	2	0	1	0	2
Brunswick	0	0	0		0	0	0	0
Savannah	0	1	3		1	1	0	1
Florida:								
Miami	0	2	0		0	0	2	0
Tampa	0	1	6		0	0	0	1
EAST SOUTH CENTRAL								
Kentucky:								
Covington		0						
Lexington	0		0		0	0	0	1
Louisville	0		1		0	0	4	7
Tennessee:								
Memphis	0	3	5		0	0	0	2
Nashville	0	3	0	1	0	0	0	0
Alabama:								
Birmingham	0	3	1	1	1	0	0	2
Mobile	0	1	2		0	0	1	0
Montgomery	0	2	2			0	0	
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith	0	0	0			0	0	
Little Rock	0	0	1		0	0	0	1
Louisiana:								
New Orleans	0	7	13		0	0	0	6
Shreveport	0	1	0		0	0	1	1
Oklahoma:								
Oklahoma City	0	2	5		0	0	0	3
Tulsa	0	1	0			0	0	
Texas:								
Dallas	0	5	28		0	0	0	4
Fort Worth	0	1	3		1	0	0	1
Galveston	0	0	0		0	0	0	0
Houston	0	5	4		1	2	1	5
San Antonio	0	2	3		0	0	0	1
MOUNTAIN								
Montana:								
Billings	0	0	0		0	0	0	0
Great Falls	0	0	0		0	0	0	0
Helena	0	0	0		0	0	0	0
Missoula	2	0	0		0	0	0	1
Idaho:								
Boise	0	0	0		0	0	0	0
Colorado:								
Denver	1	6	0		1	2	2	3
Pueblo	1	0	0		0	0	0	0
New Mexico:								
Albuquerque	0	0	0		0	0	0	0
Arizona:								
Phoenix	0	1	0		0	0	0	0
Utah:								
Salt Lake City	0	2	0		0	0	1	3
Nevada:								
Reno	0	0	0		0	0	0	0
PACIFIC								
Washington:								
Seattle	3	3	0			1	5	
Spokane	1	0	0			1	0	
Tacoma	0	3	0		0	1	0	2
Oregon:								
Portland	0	4	0		0	1	0	3
Salem	0	0	0		0	1	1	[illegible]
California:								
Los Angeles	1	17	14	85	3	1	9	[illegible]
Sacramento	5	1	0		0	0	1	[illegible]
San Francisco	32	5	1	5	0	7	9	[illegible]

City reports for week ended September 17, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths all causes
NEW ENGLAND											
Maine:											
Portland	1	0	0	0	0	0	1	0	0	1	23
New Hampshire:											
Concord	0	0	0	0	0	0	0	0	0	0	8
Nashua	0	0	0	0	0	0	0	0	0	0	
Vermont:											
Barre	0	0	0	0	0	2	0	0	0	0	3
Burlington	0	0	0	0	0	0	0	0	0	0	14
Massachusetts:											
Boston	17	25	0	0	0	7	2	5	1	16	161
Fall River	1	6	0	0	0	1	0	0	0	0	22
Springfield	1	4	0	0	0	2	0	0	0	0	28
Worcester	4	3	0	0	0	1	0	0	0	0	38
Rhode Island:											
Pawtucket	0	0	0	0	0	0	0	0	0	0	15
Providence	3	2	0	0	0	0	1	1	0	24	48
Connecticut:											
Bridgeport	1	2	0	0	0	3	0	0	0	3	29
Hartford	1	3	0	0	0	2	0	0	0	0	39
New Haven	1	1	0	0	0	1	2	1	1	16	30
MIDDLE ATLANTIC											
New York:											
Buffalo	6	14	0	0	0	15	2	0	0	64	129
New York	24	30	0	0	0	81	34	34	2	153	1,206
Rochester	2	5	0	0	0	0	1	3	0	6	41
Syracuse	2	3	0	0	0	1	0	0	0	17	47
New Jersey:											
Camden	1	1	0	0	0	2	1	0	0	0	36
Newark	3	1	0	0	0	5	1	1	0	16	68
Trenton	0	2	0	0	0	2	1	1	0	2	36
Pennsylvania:											
Philadelphia	19	20	0	0	0	16	8	9	2	27	323
Pittsburgh	10	12	0	0	0	5	4	1	0	27	140
Reading	0	0	0	0	0	0	1	0	0	10	30
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	7	7	0	0	0	6	3	3	0	3	104
Cleveland	11	18	0	0	0	13	5	3	0	36	137
Columbus	3	5	0	0	0	5	1	0	0	0	53
Toledo	4	13	1	0	0	2	1	0	0	5	54
Indiana:											
Fort Wayne	1		0				1				
Indianapolis	3	5	0	0	0	3	1	2	1	2	
South Bend	1	0	0	0	0	0	0	0	0	0	
Terre Haute	1	0	0	0	0	0	0	0	0	0	18
Illinois:											
Chicago	32	55	1	0	0	35	6	3	0	62	521
Springfield	0	1	0	0	0	0	1	0	0	0	14
Michigan:											
Detroit	25	26	0	0	0	18	4	3	1	112	181
Flint	5	0	1	0	0	1	0	1	0	5	17
Grand Rapids	4	2	0	0	0	0	0	0	0	13	18
Wisconsin:											
Kenosha	0	0	0	0	0	0	0	0	0	7	4
Milwaukee	7	2	0	0	0	3	0	0	0	32	85
Racine	2	0	0	0	0	0	0	0	0	4	9
Superior	1	0	0	0	0	0	0	1	0	0	9
WEST NORTH CENTRAL											
Minnesota:											
Duluth	4	4	0	0	0	1	0	0	0	1	25
Minneapolis	11	2	0	0	0	0	2	0	0	3	64
St. Paul	7	5	0	0	0	4	1	1	0	28	50
Iowa:											
Des Moines	2	3	0	0			0	0		3	22
Sioux City	0	0	0	0			0	0		0	
Waterloo	0	0	0	0			0	0		0	

City reports for week ended September 17, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL—continued											
Missouri:											
Kansas City	3	8	0	0	0	6	2	1	1	3	97
St. Joseph	0	0	0	0	0	0	0	1	0	1	19
St. Louis	11	7	0	0	0	5	4	5	0	5	166
North Dakota:											
Fargo	2	0	0	0	0	0	0	0	0	1	5
Grand Forks	2	0	0	0	-------	-------	0	0	-------	0	-------
South Dakota:											
Aberdeen	0	2	0	0	-------	-------	0	0	-------	1	-------
Nebraska:											
Omaha	2	6	0	0	0	1	1	0	0	0	45
Kansas:											
Topeka	1	1	0	0	0	1	0	1	0	0	19
Wichita	1	0	0	0	0	0	0	0	1	2	24
SOUTH ATLANTIC											
Delaware:											
Wilmington	1	1	0	0	0	2	0	0	0	1	21
Maryland:											
Baltimore	5	4	0	0	0	18	8	2	0	24	185
Cumberland	0	3	0	0	0	0	0	0	0	0	14
Frederick	0	0	0	0	0	0	0	0	0	0	3
District of Col.:											
Washington	6	3	0	0	0	9	3	1	0	9	133
Virginia:											
Lynchburg	0	1	0	0	0	0	1	1	1	11	14
Norfolk	1	3	0	0	0	0	1	0	0	12	25
Richmond	4	10	0	0	0	1	0	1	0	0	40
Roanoke	1	1	0	0	0	0	0	0	0	0	15
West Virginia:											
Charleston	1	1	0	0	0	0	2	1	0	0	6
Huntington	-------	4	-------	0	0	0	-------	0	0	0	-------
Wheeling	1	2	0	0	0	0	2	0	0	5	11
North Carolina:											
Raleigh	0	3	0	0	0	2	0	0	0	0	9
Wilmington	0	0	0	0	0	0	0	1	0	0	11
Winston-Salem	2	1	0	0	0	1	1	0	0	4	12
South Carolina:											
Charleston	0	0	0	0	0	2	2	0	0	0	17
Columbia	0	0	0	0	0	1	0	0	0	0	21
Greenville	-------	0	-------	0	0	0	1	0	0	8	-------
Georgia:											
Atlanta	4	2	0	0	0	3	8	6	3	3	51
Brunswick	0	0	0	0	0	0	1	0	0	0	4
Savannah	0	0	0	0	0	2	0	5	0	0	41
Florida:											
Miami	0	0	0	0	0	2	1	1	0	0	16
Tampa	0	0	0	0	0	1	0	0	0	0	17
EAST SOUTH CENTRAL											
Kentucky:											
Covington	0	-------	0	-------	-------	-------	0	-------	-------	-------	-------
Lexington	-------	7	-------	0	0	1	-------	1	0	0	1
Louisville	-------	3	-------	0	0	3	-------	4	0	0	63
Tennessee:											
Memphis	3	4	0	0	0	3	5	9	2	1	65
Nashville	1	0	0	0	0	4	5	0	0	0	-------
Alabama:											
Birmingham	4	3	0	0	0	2	4	1	0	4	58
Mobile	0	2	0	0	0	0	0	1	0	0	13
Montgomery	0	0	0	0	-------	-------	1	0	-------	0	-------
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	0	0	0	-------	-------	0	0	-------	0	-------
Little Rock	0	0	0	0	0	0	1	0	0	0	1
Louisiana:											
New Orleans	2	9	0	0	0	8	4	0	0	0	132
Shreveport	1	2	0	0	0	2	1	0	0	0	21

City reports for week ended September 17, 1932—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST SOUTH CENTRAL—continued											
Oklahoma:											
Oklahoma City	2	2	0	0	0	0	1	0	0	0	37
Tulsa	2	0	0	0			1	1		0	
Texas:											
Dallas	3	4	1	0	0	3	2	3	1	0	55
Fort Worth	2	3	0	0	0	1	1	1	0	0	30
Galveston	0	0	0	0	0	0	0	0	0	0	13
Houston	1	0	0	0	0	5	1	1	0	0	64
San Antonio	1	1	0	0	0	10	0	0	0	0	60
MOUNTAIN											
Montana:											
Billings	0	0	0	0	0	0	0	0	0	1	9
Great Falls	0	0	0	0	0	0	0	0	0	3	8
Helena	0	0	0	0	0	0	0	0	0	0	8
Missoula	0	0	0	0	0	1	0	0	0	0	9
Idaho:											
Boise	0	3	0	2	0	0	0	0	1	0	5
Colorado:											
Denver	4	8	0	0	0	4	1	0	0	7	58
Pueblo	0	0	0	0	0	0	1	1	0	7	13
New Mexico:											
Albuquerque	0	2	0	0	0	3	1	0	0	0	11
Arizona:											
Phoenix	1	0	0	0	0	0	0	0	0	0	
Utah:											
Salt Lake City	1	1	0	0	0	0	2	0	0	6	
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	2
PACIFIC											
Washington:											
Seattle	6	7	1	0			1	1		4	
Spokane	2	0	1	0			0	0		3	
Tacoma	1	0	1	1	0	1	0	1	1	0	27
Oregon:											
Portland	3	2	2	1	0	0	2	0	1	1	66
Salem	0	0	0	0	0	0		0	0	0	
California:											
Los Angeles	9	21	0	1	0	21	3	0	0	93	256
Sacramento	1	4	0	0	0	1	1	0	0	0	28
San Francisco	5	3	0	0	0	5	1	1	0	17	127

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	2	1	0	0	0	0	5	1	0
Rhode Island:									
Providence	0	0	0	0	0	0	0	1	0
MIDDLE ATLANTIC									
New York:									
New York	1	1	2	0	0	0	18	12	4
New Jersey:									
Camden	0	0	0	0	0	0	0	5	0
Newark	1	0	0	0	0	0	0	0	0
Trenton	0	0	0	0	0	0	0	2	1

City reports for week ended September 17, 1932—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
MIDDLE ATLANTIC—continued									
Pennsylvania:									
Philadelphia	0	1	0	0	1	1	2	112	8
Pittsburgh	1	0	0	0	0	0	0	1	0
Reading	0	0	0	0	0	0	0	1	0
EAST NORTH CENTRAL									
Indiana:									
Indianapolis	1	0	0	0	0	0	1	0	0
Illinois									
Chicago	0	0	0	0	0	0	5	4	0
Michigan:									
Detroit	0	0	4	0	0	0	4	1	1
Flint	0	0	0	0	0	1	1	0	0
Wisconsin:									
Milwaukee	0	0	1	1	0	0	1	2	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	0	0	0	0	0	0	0	1	0
St. Paul	0	0	0	0	0	0	1	1	0
Iowa:									
Des Moines	0	0	0	0	0	0	1	1	0
Missouri:									
St. Louis	0	0	1	1	0	0	1	0	0
Nebraska:									
Omaha	0	0	0	0	0	0	0	1	2
SOUTH ATLANTIC									
Maryland:									
Baltimore	0	0	1	1	0	0	1	4	1
Virginia:									
Lynchburg	0	0	0	0	0	1	0	0	0
South Carolina:									
Charleston [1]	0	0	0	0	2	1	0	0	0
Columbia	0	0	0	0	0	1	0	0	0
Georgia: [1]									
Savannah	0	0	0	0	0	1	0	0	0
Florida:									
Miami	0	0	0	0	0	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Nashville	0	0	0	0	1	0	0	0	0
Alabama:									
Birmingham	1	0	0	0	0	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans [1]	0	0	0	0	1	1	0	1	0
Texas:									
Fort Worth	0	0	0	0	0	1	1	0	0
San Antonio	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Utah:									
Salt Lake City	1	0	0	0	0	0	1	0	0
PACIFIC									
Washington:									
Seattle	0	0	0	0	0	0	2	1	0
Tacoma	0	0	0	0	0	0	0	1	0
California:									
Los Angeles	0	0	0	0	0	0	2	0	2
San Francisco	0	0	0	0	1	1	0	0	0

[1] Typhus fever, 7 cases: 3 cases at Charleston, S. C.; 3 cases at Atlanta, Ga.; and 1 case at New Orleans, La.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Three weeks ended September 10, 1932.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases for the three weeks ended September 10, 1932, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis				1	2			2	5
Chicken pox			26	124	7	17	3	22	199
Diphtheria	3	3	55	56	26	5	1	1	150
Erysipelas			8	7	9	3		1	28
Influenza					1			5	6
Lethargic encephalitis				1					1
Measles	12	41	55	112	4	6	48	20	298
Mumps	5			103	4				112
Paratyphoid fever	1			11					12
Pneumonia				3				2	5
Poliomyelitis	1	2	148	27			7	2	187
Scarlet fever	6	4	75	46	11	3	7	19	171
Smallpox				3		1			4
Trachoma								1	1
Tuberculosis	3	8	199	95	88	67	2	41	503
Typhoid fever	1	8	80	62	14	10	5	8	188
Undulant fever				7					7
Whooping cough	9		190	328	60	59		17	663

JAMAICA

Communicable diseases—Four weeks ended September 10, 1932.—During the four weeks ended September 10, 1932, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island of Jamaica, outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Chicken pox	5	5	Paratyphoid fever		1
Diphtheria	1		Puerperal fever		1
Dysentery	1	4	Tuberculosis	25	76
Leprosy	1		Typhoid fever	2	74

LATVIA

Communicable diseases—July, 1932.—During the month of July, 1932, cases of certain communicable diseases were reported in Latvia as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	3	Paratyphoid fever	17
Diphtheria	38	Poliomyelitis	1
Erysipelas	23	Puerperal fever	13
Influenza	59	Scarlet fever	39
Leprosy	2	Tetanus	4
Lethargic encephalitis	1	Trachoma	48
Measles	11	Typhoid fever	67
Mumps	63	Whooping cough	81

PUERTO RICO

Communicable diseases—Four weeks ended September 10, 1932.—During the four weeks ended September 10, 1932, cases of certain communicable diseases were reported in Puerto Rico as follows:

Disease	Cases	Disease	Cases
Bronchitis	23	Mumps	15
Broncho-pneumonia	16	Ophthalmia neonatorum	3
Chicken pox	19	Pellagra	1
Diphtheria	43	Pneumonia	10
Dysentery	10	Puerperal fever	4
Erysipelas	5	Syphilis	218
Filariasis	8	Tetanus	2
Framboesia, tropical	1	Tetanus, infantile	5
Influenza	25, 103	Trachoma	3
Leprosy	1	Tuberculosis	451
Malaria	3, 238	Typhoid fever	7
Measles	133	Whooping cough	93

YUGOSLAVIA

Communicable diseases—August, 1932.—During the month of August, 1932, certain communicable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	139	20	Poliomyelitis	18	--------
Cerebrospinal meningitis	8	3	Scarlet fever	289	25
Diphtheria	524	69	Sepsis	7	4
Dysentery	469	30	Tetanus	38	20
Erysipelas	163	12	Typhoid fever	359	26
Measles	71	7	Typhus fever	1	--------
Paratyphoid fever	28	--------			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of the quarantinable diseases appeared in the Public Health Reports for September 30, 1932, pp. 1992-2005. A similar cumulative table will appear in the Public Health Reports to be issued October 28, 1932, and thereafter, at least for the time being, in the issue published on the last Friday of each month.)

Cholera

China.—Cholera was reported in China as follows: Amoy, week ended September 10, 1932, 41 cases, 15 deaths; Canton, week ended September 17, 1932, 1 case, 1 death; Hankow, week ended September 3, 1932, 56 cases, 6 deaths; Hong Kong, week ended September 17, 4 cases, 3 deaths; Macao, week ended September 10, 1932, 1 case, 1 death; Nanking, week ended September 10, 1932, 48 cases, 7 deaths; Shanghai, week ended September 10, 1932, 110 cases, 10 deaths.

Chinese Eastern Railway statistics compiled to August 18, 1932, show cholera cases and deaths as follows: Changchun, 90 cases, 54 deaths; Harbin, 376 cases, 115 deaths; Mankou, 99 cases, 97 deaths; Gorlos, 56 cases, 34 deaths; Tsitsikar, 160 cases, 100 deaths.

Philippine Islands.—During the week ended September 24, 1932, cholera was reported in the Philippine Islands as follows: Iloilo Province, 13 cases, 8 deaths; Leyte Province, 4 cases, 2 deaths; Samar Province, 7 cases, 9 deaths.

Plague

Hawaii Territory.—A fatal case of plague was reported September 16, 1932, at Makawao, island of Maui, Territory of Hawaii.

Yellow Fever

Brazil.—During the week ended September 24, 1932, a fatal case of yellow fever was reported in the State of Ceara, Brazil, in a locality distant from the coast and not connected by rail.

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UNITED STATES TREASURY DEPARTMENT

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SPECIAL ARTICLE

Motor Neuritis Outbreak in Cincinnati, Ohio, Caused by Adulterated Jamaica Ginger

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen R. C. WILLIAMS, *Chief of Division*

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CONTENTS

PUBLIC HEALTH REPORTS

VOL. 47 OCTOBER 14, 1932 NO. 42

AN EPIDEMIC OF MOTOR NEURITIS IN CINCINNATI, OHIO, DUE TO DRINKING ADULTERATED JAMAICA GINGER

HISTORY, SYMPTOMATOLOLOGY, AND CLINICAL REPORT

By CHARLES E. KIELY, M. D., *Assistant Professor of Neurology*, and MURRAY L. RICH, M. D., *Instructor in Medicine, University of Cincinnati*

On March 9, 1930, press dispatches reported an epidemic paralysis of the legs in Oklahoma City ascribed to drinking Jamaica-ginger extract, popularly known as "jake." On the following day there was admitted to the Cincinnati General Hospital a tabetic whose condition was complicated by a rapidly progressive foot and wrist drop, and within a few days patients began coming with self-made diagnoses. The daily admissions are shown in Figure 1 (see p. 2056) for the months of March and April. Up to and including May, 316 cases were admitted. Confiscation of the suspected shipment by the State prohibition department, passage of a city ordinance prohibiting the sale of Jamaica ginger except on a physician's prescription, and the widespread publicity given by the press are to be credited with the suppression of the epidemic.

ONSET

It is a matter of common knowledge that Jamaica-ginger extract had a wide use as a beverage in dry communities even before the passage of the Volstead Act, and has been nationally used since. It had proved harmless in our group of patients up until late in February, 1930. So many of our patients were habitual drinkers of "jake" that it was usually difficult to identify the adulterated dose, but many of them reported that they had noticed unusual effects from the contents of the bottles marketed in late February and early March. There was a difference in taste and smell, and frequently violent vomiting and intestinal cramps and severe diarrhea followed the drinking of the extract.

More could be learned from patients whose use of "jake" had been confined to isolated consumption during the period in which this shipment was marketed. Two intelligent young men (not included in this series, as they were treated privately) drank four bottles each about Christmas time, with no untoward results. On March 1 each had two more bottles from the same stock, while a companion brought

his from another source. The first two acquired the syndrome within three weeks. The third was unaffected.

SYMPTOMS

The syndrome presented was a bilateral wrist and foot drop, with atrophy and the common signs of a degenerative neuritis. Tenderness of the nerve trunks was conspicuously rare, though many patients complained for some days of severe nocturnal pains of lancinating character in the third or fourth week after the onset. Objective sensory loss was not found, and the cranial nerves were not affected. A few patients had involuntary clay-colored stools, but the small number could easily justify the assumption of coincidence. No single case of the Korsakow psychosis developed; but one real mental condition was seen, a mildly paranoid episode. Conduct disorders requiring disciplinary measures were not infrequent, but so many of the patients were of an extremely low social level that this frequency is scarcely to be ascribed to the poison which caused the neuritis.

PROGRESS

The uniformity of the anatomical progress was startling, but the degree of disability varied widely. The weakness began first in the feet, and within a few weeks appeared in the hands. The amount of motor incapacity was not infrequently so slight that the patients remained ambulatory; cases were treated in the out-patient department of the hospital, and many were handled by physicians in their offices. No estimate of this number can be made. Physicians in neighboring cities have also made personal reports of such cases. On the other hand, many who walked into the hospital later became bedfast, and in many the paralysis of the hands was so complete as to require feeding by nurses.

Recovery has been slow. The large number of cases and the mental level of many of the patients made a follow up impossible; only the discharge from hospital can be used as a criterion. As of February 6, 1932, 119 cases were still under the care of the Cincinnati General Hospital or affiliated institutions. Of this number, 34 were bedridden, 8 walked with crutches, 57 used canes, and 20 were able to walk unassisted. The hands of 72 were in good condition, while those of 32 were moderately impaired, and of 15 badly contractured.

Six deaths occurred in the Cincinnati General Hospital, but in every case some other pathological condition adequate to cause death was found. The death of but one patient who died in Cincinnati can be

ascribed purely to this intoxication. This case was under the care of Dr. A. R. Vonderahe, and was made the subject of a special report, which is appended.

PATHOLOGY

The report of Vonderahe shows that neither in the patients dying of intercurrent disease in the Cincinnati General Hospital nor in the patient whose death was due solely to intoxication with this poison was there evidence of an infectious disease of the nervous system, but there were changes typical of neuritis and anterior horn-cell degeneration.

ETIOLOGY

With the outbreak of the epidemic it became urgent to know whether we had on our hands a highly infectious disease, and so isolation was practiced. Epidemic poliomyelitis was ruled out by the age of the patients, the symmetry of the paralysis, and the absence of febrile reaction. A careful study by Dorst and associates gave consistently negative laboratory findings in 75 cases. The later post-mortem reports confirmed his conclusions.

The postulate that we had merely an unusual number of alcoholic neuritics was equally untenable. Table 1 shows the admission for alcoholic neuritis for the years 1901–1910 and 1915–1930, inclusive. A comparison of these with the admission of over 300 cases in two months succeeding March 9 furnishes convincing disproof of such an assumption. Further analysis below shows how large a number of patients, not excessive drinkers of any sort of alcoholic beverage, were poisoned by a very small amount of the extract. This was marketed in bottles containing about 14 drams; and as Jamaica-ginger extract comes under the pure food and drug act, it is guaranteed to contain about 92 per cent of alcohol. It is usually diluted with water or soda water for beverage purposes, though a few patients boasted of drinking it "straight." The most startling proof of toxicity is furnished by the case of a tailor who had never tasted "jake" until February, 1930, when he was advised to use some for abdominal cramps. He sent a colored porter for a bottle (14 drams); each drank approximately half, and both developed the characteristic syndrome. Such an amount of alcohol is obviously too small to produce alcoholic neuritis, and the same is true in the case of those who drank four or five bottles.

TABLE 1.—*Hospital admissions for alcoholic neuritis, 1901–1910, 1915–1930*

Year	Number of patients admitted	Year	Number of patients admitted
1901	1	1918	2
1902	0	1919	2
1903	6	1920	1
1904	4	1921	1
1905	3	1922	2
1906	2	1923	1
1907	3	1924	1
1908	6	1925	0
1909	4	1926	1
1910	8	1927	0
		1928	1
Total	37	1929	2
		1930	1
1915	3		
1916	7	Total	36
1917	11		

Figures for all years are not obtainable.

As we were unable to find a record of any toxic effect of properly prepared ginger extract in the literature, and as many of the habitual drinkers recognized a difference of taste and smell and unusual gastro-intestinal effects, while some patients were paralyzed by extremely small amounts, it seems impossible to evade the conclusion that the syndrome was produced by some adulterant of the ginger extract. Of the 10 patients who denied its use, some no doubt were truthful, and their paralysis remains unexplained. Communications from Federal officers who investigated the cases in neighboring counties and States show that the trail of the "jake" peddler could practically be followed by his victims.

INVESTIGATION OF THE POISON

The clinical syndrome and the known insidious ways in which arsenic has found its way into foods and beverages demanded a search for this metal at the outset. However, none of the large number of analyses made on ginger extract bought in the open market or in the large quantity furnished us by the prohibition department, and known to have come from the contaminated shipment, gave any but such faint traces as can be found in most any substance submitted to the Gutzeit test. Kehoe and Thamann, of the University of Cincinnati, made repeated search for arsenic in the urine, and found only negligible traces. It must be remembered that Hamilton found arsenic in the urine for from 19 to 140 days after intoxication. Thamann took conservative doses of arsenic as Fowler's solution, and his urine gave immensely more severe reactions than did that of the patients examined. Foulger (personal communication to the dean of the medical school) sought evidence for arsenical intoxication in examination of the patient's hair. In short hair from males he demonstrated three times as much arsenic as in hair taken from a barber's floor for con-

trol. He also hoped to find in the long hair of women a record of the periods of arsenic ingestion. Taking the growth of hair at 1/40 to 1/60 of an inch per day, he cut hair from the heads of four women into inch lengths, which would therefore correspond to 8-day periods, if allowance is made for the diffusion rate into the hair. While he felt that peaks of arsenic content in the hair corresponded with periods of "jake" consumption, there are many facts which throw doubt on the value of the method. One of these women consistently denied ever using "jake," and there seems to be little doubt that this beverage is the source of the paralysis. In another woman whose variations of arsenic content corresponded with her original statements as to the time of consumption, a second interview showed her to be entirely vague about dates; in fact she only knew she had drunk the extract "since Christmas." Also a second clipping of hair taken immediately adjacent to one showing higher amounts of arsenic failed to give the faintest traces with the same test. The highest amount of all was found in the hair of a woman who is a total abstainer.

In the Manchester beer epidemic of 1901 it must be recalled that one-fourth to 1½ grains of arsenic as As_2O_3 were found per gallon (1). Comparing the infinitesimal amounts of arsenic found in these Jamaica-ginger extracts or the patient's hair or urine, it seems necessary to reject arsenic as the poison at fault. We are informed by officials of the Government laboratories that the population is consuming with impunity very appreciable amounts of arsenic in fruits and fruit juices as the result of the use of insecticides on the plants. The postulate that this epidemic was the result of arsenic acting on patients suffering from avitaminosis is unsupported by chemical experience and contradicted by the epidemiological study of this disease, which shows the patients as a whole to have consumed an average diet for persons in their stations in life. Poisoning from ricin, a constituent of crude castor oil, was suggested. The toxicology of ricin has been studied, and no such syndrome as produced here was found (2) (3) (4).

The great frequency of poisoning from denatured alcohol in recent years, coupled with the authorized technique of extracting Jamaica-ginger root, indicated a search for toxic denaturants. The Federal Government authorizes the use of grain alcohol containing 5 per cent methyl alcohol for the original extraction of the ground root. The loss of alcohol in this process is considerable, enough to warrant the use of this cheap tax-free alcohol. The extract is next evaporated *in vacuo*, and the solvent is recovered and reused. The residue is dissolved in (taxed) grain alcohol and marketed. Of the numerous denaturants authorized by the Government, many were chemicals whose toxicity is quite unknown even to experts, and it seemed not impossible that without any guilt of the manufacturers, alcohol so

denatured was inadvertently used in the process. A nonvolatile denaturant would remain in the residue in the approved technique, and so appear in the final product. Obviously it would be there if the same mistake were made with the final solvent.

Of the authorized denaturants, brucine and emetine are known to produce neuritis (5), but neither our research nor any other known to us has demonstrated this poison at fault.

The poison at fault seems to have been established by Smith and Elvove, of the National Institute of Health, United States Public Health Service (6) (7) (8). They have consistently found tri-ortho-cresyl phosphate in confiscated samples of "jake," and experimental poisoning of dogs, cats, monkeys, and chickens produced a motor paralysis comparable to the human syndrome.

CLINICAL REPORT

EPIDEMIOLOGY

Age.—These patients were all adults, and they ranged from 21 to 79 years of age. The majority of them were in the middle adult period of life, 138, or 68.7 per cent, being between the ages of 41 and 60, as shown by the accompanying table.

Age	Number of patients
21-25	2
26-30	6
31-35	11
36-40	15
41-45	34
46-50	40
51-55	34
56-60	30
61-65	17
66-70	7
71	5
	201

Sex.—In this series 191 were male and 10 were female.

Color.—There were 198 white and 3 negro patients studied.

ETIOLOGY

It has been the accepted belief that this epidemic has resulted from some poison contained in Jamaica ginger that had been used for beverage purposes. Therefore an attempt was made to determine the incidence of "jake" drinking among these patients, and at the same time to list any other alcoholic beverage that might have been used. The most common drinks were Jamaica ginger, "moonshine" whisky and home-brew, although other things had been used by a few, such as "canned heat" and denatured alcohol.

Drink	Number admitted using drink	Drink	Number admitted using drink
Ginger, "moonshine," and home-brew	96	Ginger alone	31
Ginger and home-brew	22	Home-brew alone	
Ginger and "moonshine"	42	"Moonshine" alone	3
"Moonshine" and home-brew	5	Nothing	2

Tabulating these figures in another manner, we get the following results:

Total number of patients admitting drinking "jake," 191, or 95.2 per cent.

Total number of patients admitting drinking "moonshine," 146, or 72.6 per cent.

Total number of patients admitting drinking home-brew, 123, or 61.2 per cent.

These figures show that Jamaica ginger was the most common beverage used by this group of patients. Not only did over 95 per cent of them admit drinking it, as compared with 72 per cent that had used "moonshine" and 61 per cent home-brew, but there were 31 patients who stated they had had nothing but Jamaica ginger, as compared with 3 who were partial to "moonshine" exclusively, and none at all who stated that home-brew was their only drink. It should be stated here that the vast majority of these patients were habitual consumers of alcoholic drinks, and that this history of what they drank included only that used for a period of at least three months previous to the onset of their paralysis. It has been of interest to see whether there was any quantitative relationship between the amount of ginger consumed and the severity of the paralysis. If a constant direct relationship could be established, then this also might be added evidence of the fact that Jamaica ginger caused this epidemic. Therefore an attempt to do this was made in the following manner: After a few of these patients had been interviewed, it became evident that they themselves frequently distinguished between what they called "new jake" and "old jake" and they firmly believed that the so-called "new jake," which they recognized by either taste or appearance, was the cause of their condition. In the case of 95 patients we were able to get a history not only of drinking this so-called "new jake" but also of how much of it had been consumed. Then these cases were divided arbitrarily into those with severe paralysis and those with relatively mild paralysis. Listed finally according to amount consumed, we find the following percentages in severe paralysis.

Less than 1 bottle	9 out of 11 cases severe—81.8 per cent severe.
1 bottle	13 out of 21 cases severe—61.9 per cent severe.
2 bottles	11 out of 17 cases severe—64.7 per cent severe.
3 bottles	9 out of 12 cases severe—75 per cent severe.
4 bottles	5 out of 6 cases severe—82.5 per cent severe.

5 bottles	5 out of 5 cases severe—100 per cent severe.
6–10 bottles	10 out of 11 cases severe—91 per cent severe.
10–25 bottles	8 out of 9 cases severe—88.8 per cent severe.

These figures show a fairly constant relationship between the amount of "new jake" consumed and the severity of the paralysis. It is our belief, therefore, that this epidemic has been caused by the drinking of Jamaica ginger—first, because such a high percentage of the patients admitted drinking it; and, second, because a direct relationship can be shown to exist between the amount of "new ginger" taken and the severity of the paralysis.

Not only is it believed that Jamaica ginger was the cause of the epidemic, but it is also believed that it was due to the drinking of a new supply of the extract, which flooded the market at about the time the epidemic started. It is also believed that it was not due to the cumulative effect of continued use of this drug as a beverage. This belief is held for two reasons: First, the lack of relationship between the amount of all "jake" which each patient had taken and the severity of the paralysis; and, second, the comparatively short period of time in which all of these cases appeared.

We were able in 187 cases to determine roughly whether or not the extract had been used to any very great extent as a beverage. We then divided these cases into two groups—first, those who in their lifetime stated that they had taken not more than five bottles of it; and, second, those who had taken more than five bottles. Obviously the second group contained all those who had been using it for some time as a beverage, while the first consisted of those who had used it only very recently for the first time, or who had taken it for medicinal purposes. Then each of these was classified as to whether the paralysis was severe or mild according to the arbitrary standards used before. The following table presents the results:

Group of patients	Total number of patients	Severe	Mild	Per cent severe
Used less than 5 bottles	41	28	13	68.3
Used more than 5 bottles	146	105	41	71.9

Thus it is seen that there was very little difference between the two in the percentage of severe cases.

As will be mentioned again, a large number of these patients complained that the ginger which paralyzed them gave them more or less of a gastrointestinal upset shortly after drinking it. We were able to obtain such a history in 125 patients. Assuming that these patients were poisoned on the date of this upset, and including 13

others in whom we can establish with certainty from their history the date that they were poisoned, we found that a large percentage of them were afflicted within a very short period, as shown below:

Time period	Number of cases	
Feb. 1– 7	0	
8–14	5	
15–21	4	
22–28	10	
Mar. 1– 7	31	
8–14	37	123, or 89 per cent.
15–21	35	
22–28	10	
29–31	4	
Apr. 1– 7	2	
8–15	0	

It is not reasonable to suppose that anything except a new supply of ginger would cause all these patients, who had been drinking ginger for such variable periods of time and in such greatly different amounts, to become paralyzed during about the same period of time and with a paralysis that did not depend in severity on the amount that they had taken previously.

SYMPTOMATOLOGY

The first symptoms of which these patients complained after drinking the "new" Jamaica ginger were those of gastroenteritis. They were not present in every patient. However, 125 out of 201, or 62.2 per cent, gave a history of such a condition. In addition, 5 others complained of the same symptoms, 4 of whom had been drinking "moonshine," and the other beer. Three of these five were among those who denied drinking any ginger, but one of them stated that he believed something (possibly ginger) had been added to the homemade drink, as it did not taste as it should. This gastrointestinal upset occurred within a few hours after drinking, and varied greatly in its severity. In some it consisted only in a feeling of nausea; in others there was only a diarrhea. In the majority, however, there was nausea, vomiting, abdominal cramps, and diarrhea. In a few the condition was severe enough to cause blood in the stool. As a rule these symptoms lasted only a day or so, and then after an interval the symptoms of neuritis appeared.

This interval, which we will designate as the paralysis interval, varied a great deal in length. The shortest was 1 day and the longest 42 days. In 142 cases in which it could be determined (consisting of the 125 who had the gastrointestinal upset, and 17 others in whom it was possible to establish the time when the ginger which

caused the paralysis had been taken), the paralysis interval was as shown in the following table:

Paralysis interval in days	Number of cases
1-7	70
8-14	39
15-21	18
22-28	9
29-35	3
36+	3

The severity of the paralysis bore a direct relationship to the paralysis interval, i. e., there were more cases of severe paralysis among those with a short interval than among those with a long one. This is demonstrated in the table presented below.

Paralysis interval in days	Number of cases	Severity of cases		Per cent severe
		Mild	Severe	
1-7	70	14	56	80
8-14	39	12	27	69.3
15-21	18	4	14	77.8
22-28	9	4	5	55.5
29-35	3	2	1	33.3
36+	3	2	1	33.3

The paralysis, which began in the lower extremities in every patient except 2, in whom the hands were first involved, was preceded by pain in the calf muscles of the legs. It was present in 168, or 83.6 per cent, and, as a rule, lasted only a few hours. It was described as an "aching pain" or a "tired feeling" or as "cramps." Some of the patients stated that they felt as if they had been walking too much.

The paralysis was typical of a multiple neuritis involving the motor fibers only. It began in the distal portion of the extremities and was always bilateral. The flexor and extensor muscles were equally involved. Often the first abnormality the patient recognized was that his "feet were flopping." This was due to the foot drop that soon was present in every case. These patients all developed a steppage gait. It soon spread up the extremity, so that within a few days the more severe cases were unable to walk at all.

The hands became involved as a rule some time after the onset of the paralysis. In 137 cases in which this was determined the interval was as follows:

Interval between onset of paralysis and involvement of hands, in days	Number of cases	
Same day	5	
1–5	27	120, or 86.1 per cent
6–10	47	
11–15	41	
16–20	7	
21–25	6	
26–30	8	
30+	1	
	137	

This was first noticed, as a rule, by a loss of the strength in the fingers and by inability to perform finer movements, such as buttoning their clothes and writing. The paralysis then spread up their arms, as it did their legs, and in a number of patients there finally developed complete paralysis of the hands. Not only the extremities suffered; in certain cases there was marked weakness of the abdominal and back muscles which prevented the patient from even sitting up in bed. In no case, however, was there any demonstrable paralysis of the diaphragm or intercostal muscles, and likewise, the cranial nerves did not become involved.

The following table shows the severe degree which the condition reached. The time which elapsed before it became most severe as a rule was between 2 and 3 weeks after the onset of the paralysis.

Involvement of lower extremities:	
1. Those with inability to flex or extend ankles but with good power in thigh muscles	21
2. Those with weakness of thigh muscles but still able to walk	54
3. Those unable to walk but still able to extend knee against gravity	57
4. Those unable to move knees at all	69
Total	201
Involvement of upper extremities:	
1. Those with no demonstrable involvement of upper extremities	3
2. Those with weakness of fingers	88
3. Those with marked weakness of hands and arms but with ability to extend wrists against gravity	52
4. Those with complete paralysis of hands and with marked weakness of arm muscles	58
Total	201
Involvement of abdominal and back muscles	58

It is to be remembered, however, that the cases presented in this series are probably the most severe ones of the epidemic, as the series consists of those admitted to the wards of the hospital. Many with lesser degrees of paralysis were treated in the clinic, and probably a larger number remained at home.

Associated with this progressive, bilateral, symmetrical paralysis were other features. Nearly all of the patients showed some disturbance of the vasomotor control of their lower extremities (181 cases, or 90 per cent). This was shown by profuse sweating of the feet at times, or by marked cyanosis when the legs were allowed to hang over the edge of the bed, or by pronounced edema of the ankles. This edema was not cardiac in origin, as physical examination of the heart was negative in nearly every case. Skin manifestations were rare. A few showed a generalized erythematous blush which faded within a week or two. Desquamation of the palms and soles, varying from slight scaling to complete desquamation, was much more common, occurring in 85 cases, or 42.3 per cent. Three of the cases developed a sterile effusion into the knee joint, such as has been described as occurring in cases of peripheral neuritis. A peculiar finding was that the liver edge in a large proportion of these patients was easily palpable from 1 to 3 finger breadths below the costal margin. It was firm, smooth, and not tender. This may be due to an associated alcoholic cirrhosis, as many of these patients were heavy drinkers, or the relaxed abdominal wall may have made palpation more easy. It was present in 97 cases, or 43.3 per cent. Sphincter control was impaired in 16 cases, and in several of these there was complete loss. As a rule the bladder was more often affected than was the anal sphincter.

As stated before, the neuritis was limited entirely to the motor nerves. There were no areas of anesthesia present in any case. In 11 of 79 cases, or 13.9 per cent (where note was made of this condition), there was some hyperesthesia of the soles of the feet. The patients complained of a good deal of pain in the muscles of the legs. This was described as an "aching" or "cramping" pain, and was most severe during the night. In some there were spasmodic contractions of muscle groups, causing the legs to be jerked violently during sleep. Of the 201 cases, 138 complained of aching, and 106 of the violent spasmodic contractions. These pains usually began after the paralysis had been present for a week or so, and then, after disturbing their sleep for from 3 to 4 weeks, gradually left. In one patient they lasted over 8 weeks and were severe enough to require morphine for relief. Vibratory sense was intact in the few in which this was tried, and there was no impairment of proprioceptive sensation. Nerve-trunk tenderness was present in comparatively few, only 11 of 119, or 9.1 per cent, where note was made of this condition. In this same 119, 46, or 38.8 per cent, complained of pain on pressure over the calf muscles.

The reflexes in these patients showed nothing remarkable. They were absent if there was a paralysis of the muscles involved; otherwise they were normal. For example, the knee jerks were present if the

quadriceps was not paralyzed. Ankle clonus was uniformly absent, and there was no response to plantar stimulation in any case. The cranial reflexes were not involved.

General physical examination showed only those abnormalities that might be expected in a group of men of this class. There were a number of hernias, varicose veins, hemorrhoids, etc. On the whole it can be stated that this epidemic produced no demonstrable changes that could be discovered during a routine physical examination, especially of the heart and lungs. Examinations by Dr. Albert Brown showed the fundi to be normal.

The patients themselves had no complaints other than the paralysis and the accompanying pain. Their appetites remained good, and they apparently enjoyed good health for the most part. They accepted their condition philosophically on the whole, and remained in good spirits. However, six patients of this series died while in the hospital. One had a carcinoma of the stomach, another developed a pulmonary endarteritis with multiple lung infarcts, and a third died suddenly, probably from an attack of angina pectoris. Post-mortem examinations were performed in all these cases.

SIGNIFICANT LABORATORY WORK

The laboratory work done on these patients showed no deviation from the normal. Urine examinations were done in 124 cases. A trace of albumin was present in 5; 6 others showed a few hyaline casts. White blood counts on 106 showed that the count was between 5,000 and 10,000 in 85 per cent of the cases. Only 4 were higher than 13,000.

RESULTS OF LABORATORY EXAMINATIONS

White blood count	Number of cases
5,000	4
6,000	6
7,000	30
8,000	22
9,000	13
10,000	16
11,000	5
12,000	4
13,000	2
14,000	1
15,000	1
16,000	1
17,000	1
	106

A red blood count was done on 45 patients. In all but 3 the count was over 4,000,000.

Red blood count	Number of cases
5,000,000 plus	14
4,500,000-5,000,000 plus	16
4,000,000-4,500,000	12
3,500,000-4,000,000	3
	45

The percentage of hemoglobin was determined in 85 cases. In 74 it was 80 per cent or over.

Per cent hemoglobin	Number of cases
100	5
95	3
90	18
85	13
80	35
75	8
70	3
	85

In 90 patients a differential count was made. No abnormalities were noted except that there was some increase in the percentage of large mononuclear cells; in some cases these reached as high as 20 per cent.

Spinal punctures were done on 120 of the patients. The fluid was normal in every case except 2, in which there was a trace of globulin, and 5, in which there was a slight increase in the cell count. This does not include 12 cases in which both cells and globulin were present, and who also had a positive spinal fluid Wassermann. Blood Wassermanns were taken in 128 cases and were returned positive in 29 cases, an incidence of 22.7 per cent. Blood cultures were taken in 100 cases; all were negative. Blood chemistry was done in 30 cases, but no significant variations were found.

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PATHOLOGICAL REPORT[1]

By A. R. VONDERAHE, M. D., *Assistant Professor of Anatomy, University of Cincinnati*

Although the number of cases of paralysis due to drinking Jamaica ginger has reached several thousands, there have been few reports on the pathological changes. This is due, in large part, to the fact that the disease, while severely disabling, is scarcely ever fatal.

Jeter (1) studied a case complicated by pronounced arteriosclerosis and senile changes. He found a perineural exudate composed largely of lymphocytes, a few polymorpholeucocytes, many red blood cells, and a slight amount of fibrin. Turley (2), studying apparently the same case, found degenerative changes in the spinal cord and medulla. Goodale and Humphreys (3) reported autopsy observations on three cases. These patients died from causes other than the sequelae of Jamaica ginger poisoning—vegetative endocarditis, multiple abscesses of both kidneys, myocardial degeneration, tubular nephritis, and generalized arteriosclerosis. Studying this material, they found myelin and axis cylinder degeneration of the radial, sciatic, external popliteal, anterior tibial, and posterior tibial nerves. They did not find degeneration of the anterior roots of the lumbar cord of the one case examined. They were unable to confirm the observations of Jeter that the perineurium was thickened.

The writer (4) reported observations of four cases of Jamaica-ginger paralysis which came to autopsy. One of these cases, a woman aged 59, presented no complications, either clinically or pathologically, of disease other than Jamaica-ginger paralysis. Her illness ran the usual course of foot drop and wrist drop, with later development of bulbar paralysis. In addition to these four cases, five others came to autopsy at the Cincinnati General Hospital, all, however, with complicating pathological factors of severity. The cases complicated by other factors served, however, to confirm the findings reported in the uncomplicated case. There was found a myelin sheath degeneration, involving scattered areas of the anterior tibial and radial nerves of the anterior roots of the lumbar and cervical areas of the spinal cord. The anterior horn cells in the cervical and lumbar areas showed central chromatolysis as the predominating type of cell change; in addition, other cells showed diffuse chromatolysis, marked swelling, eccentric nuclei, and a few cells showed marked shrinking. In all specimens there were varying amounts of amyloid bodies. There was little or no reactive cell change and none of the characteristic signs of inflammation. Serial sections through the medulla in the uncomplicated case (4) showed central chromatolysis and diffuse chromatolysis in the dorsal motor nucleus of the vagus,

[1] From the department of anatomy (neurology), University of Cincinnati Medical School.

hypoglossal nucleus, and nucleus ambiguous. There were numerous degenerated myelin fibers in the root of the vagus nerve.

Similar pathological changes have recently been found by Smith and Lillie (5) in experimental animals poisoned with tri-ortho-cresyl phosphate.

CONCLUSION

The myelin sheath degeneration, in conjunction with the central chromatolysis, suggests that the toxic agent affects primarily the peripheral nerves and, subsequently, the central nervous system. In the fatal cases, death results from an ascending paralysis which finally involves the vital centers of the medulla. The pathological changes also serve to indicate that the toxin is not of infectious origin.

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EPIDEMIOLOGICAL REPORT

By T. J. LeBlanc, Sc. D., *Associate Professor of Preventive Medicine*, and W. E. Brown, M. D., *Associate Professor of Preventive Medicine, University of Cincinnati*

Of the total number of cases of paralysis of unknown origin that were admitted to the Cincinnati General Hospital, 117 cases have been investigated epidemiologically. The accompanying questionnaire indicates the character of the information that was secured. Each of the patients was interviewed and the blanks were filled out by the authors. In each case the questionnaire was supplemented by a line of questioning to the end that each blank might be complete and as accurate as possible. This consumed a considerable amount of time, and for that reason the investigation was stopped after data on 117 cases had been secured, when it became apparent that further questioning would only confirm what was already indicated.

QUESTIONNAIRE

UNKNOWN PARALYSIS

Name .... Age ...... Sex ...... C ...... Marital state ....
Occupation .... Home address ....
House—Owned ...... Rented ...... Roomer ...... Weekly income ....
Time of residence at above .... Other places in past year ....
....
Time of onset .... Time admitted......................................

SYMPTOMS (initial)

RESPIRATORY Gastro-enteric C. N. S.

Lab. findings: Urine .... Feces .... Blood ....
Spinal fluid .... Other ....

INTAKE

Meal previous to illness .... Date ....

Cooked	Raw	Beverages
Meat, vegetables, etc............	Vegetables, fruits..............	Milk, wine, beer, etc.
	[OVER]	

Beverages not with meals .... Available sample .... Where....................
Homemade beer .... Amount .... Age ....
Maker .... Method .... Ingredients ....
Source of ingredients ....
Wine .... Amount .... Age .... Kind ....
Ingredients .... Source of .... Containers ....
Whisky .... Amount .... How made ....
Where obtained .... Kind of still ....
Jamaica ginger .... Amount .... Brand ....
Where obtained .... Mixed with what.......................................
OTHER BEVERAGES (cider, etc.)..
Dates of consumption of each kind of beverage ....
....
Social activities with dates (1) (2), etc...
....
Number (with sexes) at parties ....
Individuals affected (names and addresses) ....
....
....
Individuals NOT affected (names and addresses)...
....
....

ADDITIONAL NOTES

ONSET

The first recorded onset occurred on February 25. The onset of the disease seems sharp and clearly defined, and there was no difficulty in obtaining from the patient a reasonably accurate testimony on this point. The sudden weakness or loss of control of the feet is so dramatic that its development makes an indelible impression on the patient's mind, usually in connection with some activity that was

interrupted by the onset. After the first case, cases followed rapidly (with the exception of the last three days in February, a point of little significance that would probably disappear on questioning more patients) until March 28, when the last date of onset was recorded. Figure 1 shows the distribution of cases on a time basis with reference to the dates of onset. From this it is seen that there is little or no evidence for an original case with increasing numbers of secondary cases following after a lag period, with the epidemic gaining momentum relatively slowly as a result of such an interrupted accumulative process; nor is there any evidence of scattered cases following each other at long-time intervals. This epidemic began sharply, accumulated cases rapidly, and ended sharply. Such a course suggests that

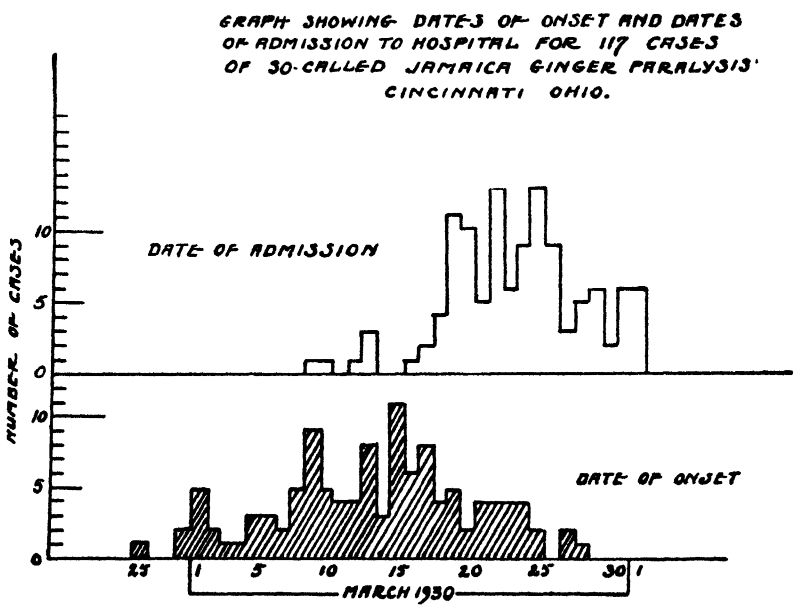

FIGURE 1

the causative agent appeared suddenly, was of sufficient potency and had such a distribution that it afflicted a large number of persons in a relatively short time, and then suddenly disappeared from the field of action. In short, this epidemic of paralysis may be said to be explosive in nature.

ADMISSIONS

The first admission was reported on March 9; and beginning March 16, cases were admitted in rapidly increasing numbers. The distribution of admissions is not as significant as that of onsets, because admission is so much a function of the patient and his attitude toward hospitalization, his income, and fortuitous circumstances, such as being picked up by the police, falling on the street, etc. In addition,

there is the factor of availability of hospital space. The sharp peaks in the distribution of admissions probably represent the opening of new wards or some other change that made additional space available.

RESIDENCE, SOCIAL STATUS, AND OCCUPATION OF PATIENTS

Practically all the patients lived within a 1-mile radius of Government Square. With some exceptions they lived in the cheaper class of rooming houses or hotels. The exceptions to this rule are important, however, since they indicate that the paralysis was not confined to a single social class. Eighteen were laborers and fourteen were cooks.

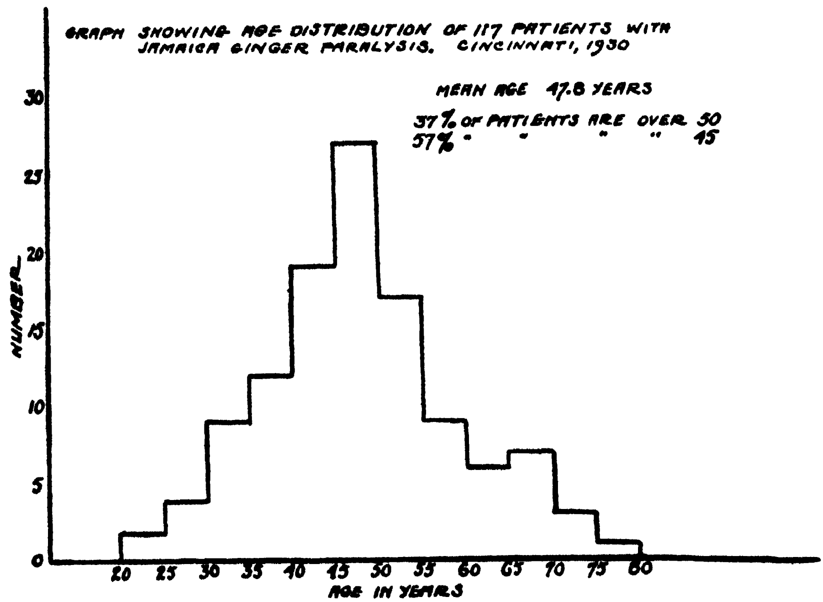

FIGURE 2

The occupations of the remainder were variously given as peddler, ragpicker, salesman, watchman, barber, packer, foreman, stockyard man, carpenter, truck driver, painter, porter, junkman, clerk, welder, cigar maker, shoemaker, collector, tailor, handbill passer, printer, pool-room worker, and some other occupations. With some exceptions, the patients represent a social status lower than would be indicated by the occupations. The exceptions, as in the case of "residence," are important. A construction foreman, with an income of $85 a week, might compare favorably in economic status with a college professor. The graphs representing income and age (Figs. 2 and 3) clearly show that the patients we are dealing with are both low in earning power and fairly advanced in years.

AGE, SEX, AND COLOR

The ages range from 21 to 79 years. The mean age is 47.8 years. To indicate the massing of the older ages, 37 per cent are over 50 years of age and 57 per cent are over 45 years of age. It is significant that there are no cases of school age or pre-school age. Out of 117 cases, 11 were females and 1 was colored. Both of these findings are epidemiologically significant and have a great bearing on the question of infection. No known infectious disease shows any such sex and color incidence.

INCOME

As will be noted from the income graph, the distribution is decidedly skew, being massed at the end representing the lowest incomes. It

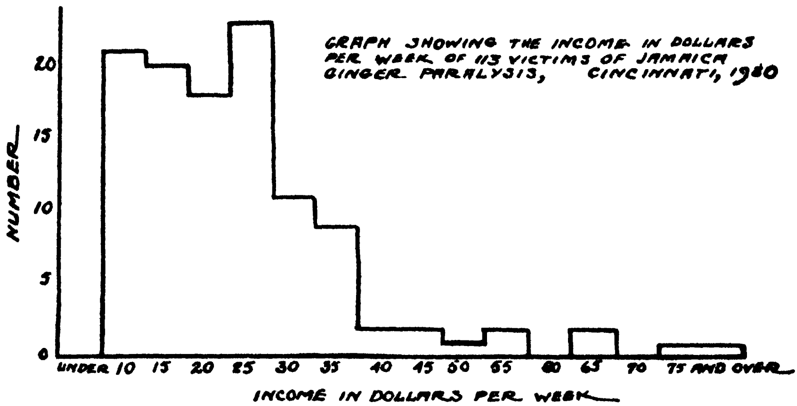

FIGURE 3

must be remembered that the incomes listed were those received by the patients when at work. The majority of these patients had not been working for from three to six months prior to the onset, and so their real income is much lower than is indicated.

DIET

In general, the diet of these patients may be said to be poor, although again there were exceptions. Some individuals, especially those in the income groups of $40 a week and over and who maintained household establishments, enjoyed diets adequate in every respect. The poorest diets were found among those persons who lived in a single room and did their own cooking. No information of real significance was gained from careful questioning on diet. No one factor was common to all the cases, not even coffee, since some of the patients drank milk or buttermilk instead of tea or coffee. Uncooked vegetables were common, but several individuals had not

eaten uncooked vegetables for months. In short, findings with reference to food intake were entirely negative.

HISTORY OF CONTACT

A striking fact was brought out during the questioning on contact, namely, that a fair proportion of the patients lived and led lonesome lives. They worked alone, lived alone, had no friends and no social contacts. Indeed it would be difficult to imagine anyone having less contact with the people about them than some of these patients. Contrasted with this group were those who were married and who maintained homes, and those who were accustomed to enjoy their leisure moments in the company of kindred spirits. Thus, excepting those instances where paralysis occurred in husband and wife, no common factor appeared in the social history.

BEVERAGE HISTORY

The first significant fact appeared when the findings on beverage intake were assembled. Of the 117 patients studied, the following beverage histories were elicited:

Home-brew, "moonshine," and Jamaica ginger	44
"Moonshine" and Jamaica ginger	27
Home-brew and Jamaica ginger	12
Jamaica ginger only	17
Home-brew and "moonshine"	4
Home-brew	3
Home-brew, "moonshine," Jamaica ginger, and others	3
Home-brew, Jamaica ginger, and others	1
"Moonshine," Jamaica ginger, and others	1
Jamaica ginger and others	2
"Moonshine"	2
No Jamaica ginger	9
No beverages (tabetic)	1

In the above table, "others" refers to such things as "canned heat," denatured alcohol ("derail," "third rail"), cologne, perfumes, toilet waters, flavoring extracts, etc.

SUMMARY OF BEVERAGE INTAKE

Jamaica ginger, either with or without others	107, or 91.5 per cent.
No Jamaica ginger	10, or 8.5 per cent.
Jamaica ginger only	17, or 14.5 per cent.

Place of obtaining beverages.—All drinks, and especially the Jamaica ginger, were obtained within a 1-mile radius of Government Square. The ginger was obtained from places grouped in "nests," one on Court Street between Vine and Walnut, one on lower Central Avenue, one

at Longworth and Plum Streets, and one at the foot of Broadway. Specific addresses of places where Jamaica ginger was purchased are on file in the college of medicine of the university.

DISCUSSION

The first question that had to be settled from an administrative standpoint was, Is this disease contagious? Upon the answer depended the arrangement of patients and the nursing. The answer appeared to be in the negative, because of—

1. No significant history of contact;
2. No convincing evidence of secondary cases;
3. Well-defined and limited age distribution;
4. Unusual sex incidence;
5. Unusual color incidence;
6. Clinical findings;
7. Laboratory findings.

The above evidence is by no means conclusive and does not rigorously exclude the possibility of some entirely new contagious disease which would exhibit such epidemiological characteristics, and of course such possibilities must ever be kept in mind. However, no matter how intriguing the prospect, the slight possibility of some exotic disease must be sacrificed for the time being to the urgent necessity for an administrative decision. When a hospital is operating almost at full capacity and a new disease appears at the rate of 5 to 10 cases per day until more than 250 cases are admitted, there is no time to marshal complete evidence, weigh fine points, nor to enter into academic discussions. In this particular case it is admitted that the decision was somewhat of a gamble, but the odds seemed to favor the noncontagious viewpoint and subsequent developments served to confirm that stand.

We will turn now briefly to a consideration of the patients and their habits. In the tabulation on beverage history it is seen that nine persons denied having used Jamaica ginger. As time passed, these patients sooner or later changed their testimony. A wife denied the fact, while her husband in another ward gave a history in which he glibly named the brand which his wife was accustomed to drink. One man who denied drinking any beverage was shown to be tabetic and moved to another ward. After three months there remained only one patient who still denied drinking Jamaica ginger, and there is reason to believe that he was not telling the truth. He felt slightly superior to the other patients and in his denial there seemed to be an element of desire to set himself apart from what he considered a low social order. In other words, the final findings in 117 cases of paralysis were that all but one person drank Jamaica ginger, and this one was suspected of being unreliable.

In connection with brands it appears that in this epidemic the brand is of no significance, since we had cases traced almost to every brand. We also had testimony to the effect that empty bottles were refilled by dealers, and it is suspected that a single bulk shipment might have been distributed to several bottling houses, later to appear under several different labels.

With reference to the time required for the causative agent to act, it is impossible to give an accurate figure. Most of the patients had been drinking Jamaica ginger for some time, many of them for a period of 10 years—a significant fact, since it shows that the Jamaica ginger per se was not responsible. The vast majority of patients continued to drink up to the time of onset, some even to the time of admission. This obscures the time required for the effects to make themselves manifest. In those cases in which Jamaica ginger was taken at one specific time and none afterwards, the time between ingestion and the onset of paralysis is highly variable. If we are to believe the testimony of these patients, the time element varied between 13 hours, the shortest, and 6 weeks, the longest. The best estimate we can offer is to say that 7 to 14 days elapsed between the drinking of the Jamaica ginger and the beginning of paralysis.

With reference to general symptoms, nothing of significance could be allocated to the respiratory system. Almost all patients had had colds or sore throats some time previous to the onset of paralysis, but none felt that these disturbances were increased either in frequency or intensity. There were some exceptions in those who had no colds or sore throats all winter. Concerning gastrointestinal symptoms, 43 patients, or 38 per cent, suffered some disturbance between the drinking of Jamaica ginger and the onset of paralysis. In many it was diarrhea with cramps, in others diarrhea without cramps, while still others had cramps only. The striking fact is the relatively low incidence of symptoms to be followed by such a grave disturbance of the nervous system.

The difference in sex incidence needs no explanation. Color differences are probably purely expressions of economic differences. Negroes tend to drink "moonshine" at $1 to $2 a gallon in preference to Jamaica ginger at 25 to 35 cents for a 2-ounce bottle. The one colored patient in our group had been given the Jamaica ginger by a white man, a tailor, who was not accustomed to drinking. He was suffering with cramps and was advised to take Jamaica ginger for relief. The negro porter was sent out to procure one bottle. The tailor took half of the contents of the bottle and disliked it so much that he gave the remaining half to the negro. Both are in the hospital, helplessly paralyzed.

It should be kept in mind that the patients here dealt with represent to some degree a selected sample, simply because they came or were

brought to the General Hospital. This selection would act to place social status and economic levels lower than if such a factor had not operated. However, many persons were treated by private physicians in homes or private hospitals, and indeed a few cases were known to have occurred among the so-called "élite." Therefore, this paralysis did not confine itself exclusively to any lower fraction of the social structure, but rather to those persons who had ingested a certain kind of Jamaica ginger, and the effects followed regardless of the person's color, creed, or social condition. From information gleaned in interviewing patients it is probably a conservative estimate to say that the total number of cases of paralysis in Cincinnati approximated 1,000.

From an administrative standpoint the epidemic was not handled as deftly as a student of the phenomenon might have wished. As soon as cases began to appear the newspapers came out with large headlines hinting at charges of manslaughter, so that almost immediately it became impossible to obtain authentic samples of suspected materials. But, finally, a most interesting piece of evidence, cases of paralysis ceased abruptly when the sale of Jamaica ginger was prohibited by ordinance.

SUMMARY

1. An epidemic of an unusual type of paralysis occurred in Cincinnati, beginning approximately February 25 and extending approximately to March 28, 1930.

2. A sample group of 117 cases was studied from an epidemiological standpoint.

3. No history of contact could be elicited to which any real significance could be attached.

4. No common factor appeared in food intake.

5. One hundred and six of the 117 patients were males, and only 1 was colored.

6. Ages ranged from 21 to 79, with a mean age of 47.8 years.

7. Upon first questioning, all but 9 patients admitted drinking Jamaica ginger. As time passed, 8 of these changed their testimony and the 1 remaining is believed to be untruthful.

8. The time between the ingesting of the Jamaica ginger and the onset of paralysis varied between 13 hours and 6 weeks. Seven to fourteen days is a fair approximation of this factor, but only an approximation.

9. The majority of patients had been regular drinkers of Jamaica ginger, some over a period of 10 years, and so Jamaica ginger per se was not the causative agent.

10. The epidemic ceased with the prohibition of the sale of Jamaica ginger.

CONCLUSIONS

This particular epidemic of an unusual form of paralysis was probably caused by the ingestion of Jamaica ginger, containing some element, unknown at that time, not ordinarily found in Jamaica ginger. This element made its appearance in the ginger probably sometime during January or February, 1930. This date, however, is only an approximation.

COURT DECISION RELATING TO PUBLIC HEALTH

Statute concerning sanitary wrapping of bread held violative of constitutional requirement regarding a law's title and subject matter.—(Minnesota Supreme Court; Egekvist Bakeries, Inc., *v.* Benson, Atty. Gen., et al., 243 N. W. 853; decided July 15, 1932.) In 1927 the legislature enacted chapter 351, entitled "An act regulating the weight of bread." In 1931 this law was amended by chapter 322, entitled "An act to amend sections 2 and 3, chapter 351, General Laws 1927, relating to the weight and sanitary wrapping of bread." In a suit brought to enjoin the enforcement of the said 1931 law, the validity of the law was questioned on the ground that it violated the requirement of the State constitution that no law should embrace more than one subject, which should be expressed in its title.

The supreme court, referring to a former decision in which the holding had been that an amendatory act, entitled as such and nothing more, must remain not only within the title but also germane to the actual subject matter of the amended act, held that the act involved in the instant case offended both limitations. The original 1927 law, according to the court, was well within its title, as it regulated the weight of bread sold or exposed for sale and nothing else, but respecting the 1931 law the court had this to say:

> * * * In requiring wrapping it goes beyond both title and scope of the original act. Neither made reference to wrapping of bread. Both were concerned only with regulating weight. It is a misleading misnomer to call a later act concerning wholly the wrapping of bread amendatory of the former law concerning weight only. It is distinctly new legislation on a new subject.
>
> The law of 1931 is not helped by the concluding phrase in the title, "relating to the weight and sanitary wrapping of bread." When that phrase is reached, the act is already limited to amending old law. The qualifying words characterize old law to be changed rather than a new subject of new law. * * *

DEATHS DURING WEEK ENDED SEPTEMBER 24, 1932

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Sept. 24, 1932	Corresponding week, 1931
Data from 85 large cities of the United States:		
Total deaths	6,750	6,751
Deaths per 1,000 population, annual basis	9.6	9.8
Deaths under 1 year of age	573	679
Deaths under 1 year of age per 1,000 estimated live births [1]	47	53
Deaths under 1,000 population, annual basis, first 38 weeks of year	11.2	12.1
Data from industrial insurance companies:		
Policies in force	70,528,828	74,796,694
Number of death claims	10,919	13,068
Death claims per 1,000 policies in force, annual rate	8.1	9.1
Death claims per 1,000 policies, first 38 weeks of year, annual rate	9.7	9.9

[1] 1932, 81 cities; 1931, 77 cities.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended October 1, 1932, and October 3, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended October 1, 1932, and October 3, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Oct 1, 1932	Week ended Oct. 3, 1931	Week ended Oct. 1, 1932	Week ended Oct. 3, 1931	Week ended Oct. 1, 1932	Week ended Oct. 3, 1931	Week ended Oct. 1, 1932	Week ended Oct. 3, 1931
New England States:								
Maine	3	8	2		1	31	0	0
New Hampshire	1	3				2	0	0
Vermont	1				1	9	0	0
Massachusetts	18	36	2	5	53	22	3	1
Rhode Island	5	8			1	4	0	2
Connecticut	5	2		3	2	3	0	0
Middle Atlantic States:								
New York	41	53	[1] 13	[1] 10	90	41	4	5
New Jersey	9	22	4	5	41	1	1	2
Pennsylvania	94	83			64	84	7	7
East North Central States:								
Ohio	75	116	4	2	37	22	1	0
Indiana	75	20	8	6	3	3	8	2
Illinois	83	70	7	1	14	15	3	4
Michigan	22	17	1	1	41	17	3	8
Wisconsin	14	8	16	12	49	16	1	1
West North Central States:								
Minnesota	11	21	3		22	4	2	2
Iowa	6	10			1	3	1	0
Missouri	67	49					3	1
North Dakota	2	5			10		0	1
South Dakota	1	13			2	8	0	0
Nebraska	21	14		1	5	2	0	0
Kansas	17	19	1		2	2	0	0
South Atlantic States:								
Delaware	2	3		8			0	0
Maryland [2 3]	10	40	3	2	2	1	0	0
District of Columbia	3	11			2		0	0
Virginia	64				18		0	
West Virginia	67	58	6	13	19	23	0	0
North Carolina	75	180	24	9	24	8	1	0
South Carolina	17	82	190	188	7	5	0	0
Georgia [3]	48	61	82	9	11	6	1	0
Florida [3]	11	16	1			17	0	0
East South Central States:								
Kentucky	74	144			47		0	1
Tennessee	65	103	15	13		2	2	1
Alabama [3]	94	116	10		2	8	1	1
Mississippi	35	146					2	0
West South Central States:								
Arkansas	37	47	18		2	1	0	0
Louisiana	24	32	10		5		1	1
Oklahoma [4]	68	111	13	1		1	0	0
Texas [3]	120	28	43	3	8	1	0	1

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended October 1, 1932, and October 3, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Oct. 1, 1932	Week ended Oct 3, 1931	Week ended Oct. 1, 1932	Week ended Oct. 3, 1931	Week ended Oct. 1, 1932	Week ended Oct. 3, 1931	Week ended Oct. 1, 1932	Week ended Oct. 3, 1931
Mountain States:								
Montana	1	2	16		45	17	0	0
Idaho	5	6					0	0
Wyoming	1				1		1	0
Colorado	7	7			5	4	2	0
New Mexico	8	8			2	1	0	1
Arizona [5]	2	3		3	2	2	0	0
Utah [2]		2		6	1	1	1	1
Pacific States:								
Washington	8	5	3		6	7	0	2
Oregon	2		35	18	14	4	0	0
California	47	43	146	15	25	54	3	4
Total	1,466	1,726	626	329	682	451	52	49

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Oct. 1, 1932	Week ended Oct. 3, 1931	Week ended Oct. 1, 1932	Week ended Oct 3, 1931	Week ended Oct. 1, 1932	Week ended Oct. 3, 1931	Week ended Oct. 1, 1932	Week ended Oct. 3, 1931
New England States:								
Maine	1	8	11	16	0	0	7	8
New Hampshire	0	22	4	10	0	0	0	0
Vermont	0	9	3	10	0	3	0	0
Massachusetts	2	112	133	103	0	0	8	4
Rhode Island	0	4	14	5	0	0	1	4
Connecticut	1	64	18	11	0	0	8	4
Middle Atlantic States:								
New York	16	275	161	104	0	0	26	39
New Jersey	22	52	56	44	0	0	11	20
Pennsylvania	110	50	238	167	0	0	71	93
East North Central States:								
Ohio	3	11	227	196	4	4	90	59
Indiana	1	6	88	35	0	7	21	18
Illinois	8	51	167	80	0	5	37	29
Michigan	8	112	113	69	0	1	22	16
Wisconsin	2	47	28	21	1	1	8	4
West North Central States:								
Minnesota	9	56	29	44	0	1	4	2
Iowa	2	13	33	14	7	11	41	8
Missouri	0	5	59	38	0	0	18	16
North Dakota	2	3	9	4	0	5	13	4
South Dakota	0	0	6	7	0	1	1	1
Nebraska	0	1	16	8	0	2	0	1
Kansas	2	0	61	35	0	0	11	14
South Atlantic States:								
Delaware	0	1	3	1	0	0	2	2
Maryland [1,3]	0	6	34	33	0	0	20	33
District of Columbia	2	4	8	6	0	0	1	0
Virginia	2	2	58		0		29	
West Virginia	4	11	57	38	3	2	53	81
North Carolina	0	4	70	88	0	0	7	29
South Carolina	0	2	8	6	0	0	12	86
Georgia [3]	0	0	29	17	0	1	37	27
Florida [3]	0	3	2	4	0	0	1	3
East South Central States:								
Kentucky	1	1	71	62	0	0	51	102
Tennessee	0	2	66	39	3	84	36	82
Alabama [3]	1	0	57	30	0	2	24	30
Mississippi	1	0	7	26	0	4	12	31
West South Central States:								
Arkansas	0	1	11	20	0	2	12	13
Louisiana	2	0	6	16	0	1	17	59
Oklahoma [4]	1	1	19	29	0	4	40	58
Texas [3]	3	1	51	14	6	0	29	53

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended October 1, 1932, and October 3, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Oct. 1, 1932	Week ended Oct. 3, 1931	Week ended Oct. 1, 1932	Week ended Oct. 3, 1931	Week ended Oct. 1, 1932	Week ended Oct. 3, 1931	Week ended Oct. 1, 1932	Week ended Oct. 3, 1931
Mountain States:								
Montana	1	4	9	4	3	0	5	4
Idaho	0	0	2	13	0	7	2	11
Wyoming	1	1	6	0	2	0	3	1
Colorado	0	0	54	14	2	0	8	9
New Mexico	0	1	8	1	0	0	19	13
Arizona	0	0	14	4	0	0	7	8
Utah	0	0	2	3	0	0	1	0
Pacific States:								
Washington	3	5	17	28	5	0	6	4
Oregon	1	0	8	11	0	3	1	3
California	5	4	81	79	11	4	17	18
Total	217	955	2,232	1,607	47	105	850	1,049

[1] New York City only.
[2] Week ended Friday.
[3] Typhus fever, week ended Oct. 1, 1932, 21 cases: 1 case in Maryland, 5 cases in Georgia, 2 cases in Florida, 4 cases in Alabama, and 9 cases in Texas.
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa.
[5] Rocky Mountain spotted fever, week ended Oct. 1, 1932, 1 case in Arizona.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
August, 1932										
Arkansas	--------	52	15	350	11	164	5	27	2	106
California	10	169	551	3	167	3	34	220	29	71
Kansas	5	47	4	--------	60	--------	9	72	7	67
Texas	1	184	50	1,003	--------	--------	3	77	--------	148
Virginia	2	105	--------	40	66	32	7	110	0	182

August, 1932	Cases
Chicken pox:	
Arkansas	9
California	228
Kansas	7
Virginia	21
Dysentery:	
California (amebic)	7
California (bacillary)	24
Dysentery and diarrhea:	
Virginia	559
Food poisoning:	
California	90
German measles:	
California	21
Kansas	8
Granuloma, coccidioidal:	
California	2
Hookworm disease:	
Arkansas	3
California	1
Impetigo contagiosa:	
Kansas	2
Jaundice, epidemic:	
California	2
Leprosy:	
California	2
Lethargic encephalitis:	
California	4
Kansas	1
Mumps:	
Arkansas	4
California	242
Kansas	27
Ophthalmia neonatorum:	
California	2
Paratyphoid fever:	
California	5
Kansas	6
Texas	13
Virginia	12
Psittacosis:	
California	2
Rabies in animals:	
California	32
Rabies in man:	
Kansas	1
Rocky Mountain spotted fever:	
Virginia	2
Septic sore throat:	
California	9
Kansas	4
Virginia	9
Tetanus:	
California	11
Kansas	4
Virginia	1
Trachoma:	
California	7
Kansas	3
Virginia	1
Trichinosis:	
California	34
Tularæmia:	
California	2
Virginia	2
Typhus fever:	
California	1
Virginia	3
Undulant fever:	
California	9
Kansas	6
Virginia	4
Vincent's angina:	
Kansas	8
Whooping cough:	
Arkansas	56
California	1,297
Kansas	248
Virginia	356

WEEKLY REPORTS FROM CITIES

City reports for week ended September 24, 1932

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded, and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible but no year earlier than 1923 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	1	0	0		0	0	0	0
New Hampshire:								
Concord	0	0	0		0	0	0	0
Nashua	0	0	0		0	0	0	0
Vermont:								
Barre	0	0	0		0	0	0	0
Burlington	0	0	0		0	0	0	0
Massachusetts:								
Boston	3	14	9		0	2	9	11
Fall River	0	2	1		0	0	1	0
Springfield	0	2	1		0	0	0	0
Worcester	0	3	1		0	1	0	3
Rhode Island:								
Pawtucket	0	0	0		0	0	0	0
Providence	0	3	1	1	0	0	2	0
Connecticut:								
Bridgeport	0	3	0		0	0	0	1
Hartford	4	1	1		0	0	0	2
New Haven	0	1	0		0	0	3	0
MIDDLE ATLANTIC								
New York:								
Buffalo	1	7	11		0	1	1	7
New York	15	69	36	7	3	23	29	72
Rochester	1	2	0		0	1	1	4
Syracuse	2	1	0		0	0	0	0
New Jersey:								
Camden	0	2	6		0	1	0	0
Newark	1	8	5	5	0	4	11	3
Trenton	1	1	0		0	0	0	5
Pennsylvania:								
Philadelphia	3	18	5		2	0	2	11
Pittsburgh	1	10	5	1	0	2	1	9
Reading	0	1	0		0	0	0	0
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	0	5	1		0	0	0	1
Cleveland	10	16	2		0	1	1	5
Columbus	1	3	5		0	23	0	2
Toledo	0	3	2		0	2	0	0
Indiana:								
Fort Wayne	1	1	3		0	0	0	1
Indianapolis	3	5	0		0	0	7	6
South Bend	0	1	0		0	0	0	2
Terre Haute	0	0	1		0	0	0	1
Illinois:								
Chicago	22	51	9	1	1	1	8	16
Springfield	0	0	4		0	0	0	0

City reports for week ended September 24, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—continued								
Michigan:								
Detroit	7	29	10		0	9	7	9
Flint	0	2	0		0	0	0	1
Grand Rapids	1	1	0		0	0	1	1
Wisconsin:								
Kenosha	3	0	0		0	1	0	0
Madison	0	0	0			2	0	
Milwaukee	8	5	2		0	1	3	4
Racine	0	0	0		0	0	0	0
Superior	1	0	0		0	0	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth	0	0	0		0	0	0	1
Minneapolis	3	13	2		0	0	6	6
St. Paul	6	4	0		0	0	2	4
Iowa:								
Des Moines	0	1	6			0	0	
Sioux City	0	1	1			1	1	
Waterloo	0	1	0			1	1	
Missouri:								
Kansas City	0	2	1		0	0	2	3
St. Joseph	0	0	0		0	0	0	2
St. Louis	3	18	16			0	0	2
North Dakota:								
Fargo	0	0	0		0	0	0	0
Grand Forks	0	0	0			2	0	
South Dakota:								
Aberdeen	0	0	0		0	1	0	0
Nebraska:								
Omaha	0	6	6		0	1	0	6
Kansas:								
Topeka	1	0	0		0	3	4	1
Wichita	0	1	0		0	0	0	0
SOUTH ATLANTIC								
Delaware:								
Wilmington	1	0	1		0	0	0	3
Maryland:								
Baltimore	4	11	5	1	2	1	14	11
Cumberland	0	0	0		0	0	0	1
Frederick	0	0	0		0	0	0	0
District of Columbia:								
Washington	1	9	2	1	1	1	0	8
Virginia:								
Lynchburg	0	3	0		0	0	0	1
Norfolk	0	1	1		0	1	0	3
Richmond	0	11	0		0	0	0	4
Roanoke	0	3	1		0	0	0	1
West Virginia:								
Charleston	0	0	1		0	0	0	0
Huntington	0		3		0	0	0	0
Wheeling	0	0	0		0	1	0	2
North Carolina:								
Raleigh	0	2	0		0	0	0	0
Wilmington	0	1	3		0	0	0	0
Winston-Salem	0	4	0		0	6	0	2
South Carolina:								
Charleston	0	0	1	6	0	0	0	0
Columbia	0	0	1		0	1	0	3
Greenville	0	1	0		0	0	0	0
Georgia:								
Atlanta	0	4	7	7	0	0	0	2
Brunswick	0	0	1		0	0	0	0
Savannah	0	0	5	2	0	1	0	0
Florida:								
Miami	1	1	2		0	0	0	0
Tampa	0	1	4		1	0	0	2

City reports for week ended September 24, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL								
Kentucky:								
Covington		0						
Lexington	1		0		0	0	0	0
Louisville	4		7		0	0	4	6
Tennessee:								
Memphis	0	3	4		0	0	0	2
Nashville	0	2	0		0	0	0	1
Alabama:								
Birmingham	0	4	4	1	0	0	0	3
Mobile	0	0	3		0	0	0	0
Montgomery	0	3	3			0	3	
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith	0	1	0			0	0	
Little Rock	0	1	2		0	0	0	3
Louisiana:								
New Orleans	0	7	9		0	0	0	5
Shreveport	0	1	0		0	2	0	2
Oklahoma:								
Muskogee	0		5		0	0	1	0
Oklahoma City	0	2	4		1	0	0	1
Tulsa	0	2	2	0		0	0	
Texas:								
Dallas	1	6	30	1	1	1	0	1
Fort Worth	0	1	5		0	2	0	1
Galveston	0	0	2		0	0	0	2
Houston	0	6	4		0	0	0	4
San Antonio	0	2	9		0	0	0	1
MOUNTAIN								
Montana:								
Billings	0	0	0		0	0	0	0
Great Falls	0	0	0		0	1	0	0
Helena	1	0	0		0	0	0	0
Missoula	0	0	0		0	0	0	0
Idaho:								
Boise	0	0	0		0	0	0	1
Colorado:								
Denver	0	6	3		0	1	4	5
Pueblo	3	1	0		0	0	0	0
New Mexico:								
Albuquerque	0	0	0		0	3	0	0
Arizona:								
Phoenix	0	0	0		0	0	0	1
Utah:								
Salt Lake City	1	2	0		0	2	5	1
Nevada:								
Reno	0	0	0		0	0	0	0
PACIFIC								
Washington:								
Seattle	1	2	0			1	0	
Spokane	2	1	0			1	0	
Tacoma	0	2	0		0	0	0	1
Oregon:								
Portland	3	4	1	1	0	1	1	3
Salem	0	0	0	3	0	1	0	0
California:								
Los Angeles	11	18	16	86	1	3	9	6
Sacramento	1	1	0		0	1	0	0
San Francisco	28	6	2	3	0	3	4	7

City reports for week ended September 24, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	0	2	0	0	0	0	1	0	0	17	24
New Hampshire:											
Concord	0	0	0	0	0	0	0	0	0	0	6
Nashua	0	0	0	0	0	0	0	0	0	0	-------
Vermont:											
Barre	0	0	0	0	0	0	0	0	0	0	2
Burlington	0	0	0	0	0	0	0	0	0	0	6
Massachusetts:											
Boston	20	28	0	0	0	6	2	1	0	10	189
Fall River	2	6	0	0	0	2	1	0	0	2	24
Springfield	1	0	0	0	0	0	1	1	0	6	26
Worcester	6	7	0	0	0	0	0	1	0	1	33
Rhode Island:											
Pawtucket	1	0	0	0	0	0	0	0	0	0	16
Providence	2	5	0	0	0	1	1	0	0	11	57
Connecticut:											
Bridgeport	1	5	0	0	0	0	0	0	0	2	15
Hartford	1	3	0	0	0	0	1	0	0	2	29
New Haven	1	1	0	0	0	0	1	0	0	3	30
MIDDLE ATLANTIC											
New York:											
Buffalo	7	10	0	0	0	3	1	2	1	1	109
New York	28	31	0	0	0	66	33	23	2	110	1,183
Rochester	2	6	0	0	0	1	1	0	0	7	50
Syracuse	2	5	0	0	0	0	0	0	0	16	34
New Jersey:											
Camden	1	2	0	0	0	0	1	0	0	1	18
Newark	4	5	0	0	0	12	1	0	0	17	87
Trenton	1	2	0	0	0	0	1	1	0	4	34
Pennsylvania:											
Philadelphia	23	23	0	0	0	29	8	12	0	24	386
Pittsburgh	12	15	0	0	0	8	2	1	0	20	130
Reading	0	1	0	0	0	1	0	0	0	6	21
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	8	12	0	0	0	11	1	5	1	9	114
Cleveland	12	20	0	0	0	4	3	2	0	25	123
Columbus	4	19	0	0	0	1	1	1	1	0	73
Toledo	5	9	0	0	0	2	1	0	0	7	53
Indiana:											
Fort Wayne	1	0	0	0	0	1	0	1	0	0	14
Indianapolis	4	8	1	0	0	3	3	2	0	4	91
South Bend	2	1	0	0	0	2	0	0	0	2	15
Terre Haute	0	1	0	0	0	1	1	1	0	0	20
Illinois:											
Chicago	37	54	0	0	0	34	6	4	2	37	595
Springfield	0	1	0	0	0	0	1	0	0	0	21
Michigan:											
Detroit	27	30	1	0	0	16	4	4	0	108	196
Flint	5	3	0	0	0	0	1	1	0	0	12
Grand Rapids	4	1	0	0	0	0	0	0	0	17	16
Wisconsin:											
Kenosha	1	2	0	0	0	0	0	0	0	2	6
Madison	1	1	0	0	-------	-------	0	1	-------	2	-------
Milwaukee	8	1	0	0	0	5	0	1	0	40	98
Racine	2	0	0	0	0	0	0	0	0	3	12
Superior	1	0	0	0	0	0	0	0	0	0	5

City reports for week ended September 24, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL											
Minnesota:											
Duluth	4	1	0	0	0	0	0	0	0	6	19
Minneapolis	13	5	0	0	0	1	1	4	0	15	85
St. Paul	8	4	0	0	0	1	1	1	0	13	55
Iowa:											
Des Moines	2	4	0	0	-------	-------	0	0	-------	0	33
Sioux City	0	0	0	0	-------	-------	0	0	-------	0	-------
Waterloo	1	0	0	0	-------	-------	0	1	-------	0	-------
Missouri:											
Kansas City	4	7	0	0	0	4	1	0	0	1	82
St. Joseph	1	0	0	0	0	1	0	0	0	0	24
St. Louis	10	11	0	0	0	18	6	7	1	4	183
North Dakota:											
Fargo	0	0	0	0	0	0	0	0	0	0	5
Grand Forks	0	0	0	0	-------	-------	0	0	-------	0	-------
South Dakota:											
Aberdeen	0	0	0	0	-------	-------	0	0	-------	0	-------
Nebraska:											
Omaha	2	10	1	0	0	2	0	0	0	0	45
Kansas:											
Topeka	1	0	0	0	0	0	0	0	0	0	21
Wichita	2	2	0	0	0	0	0	0	0	0	-------
SOUTH ATLANTIC											
Delaware:											
Wilmington	1	2	0	0	0	0	1	0	0	0	14
Maryland:											
Baltimore	6	11	0	0	0	8	7	0	0	26	173
Cumberland	0	0	0	0	0	2	0	2	0	2	6
Frederick	0	1	0	0	0	0	0	0	0	0	7
District of Col.:											
Washington	7	5	0	0	0	10	4	2	0	6	117
Virginia:											
Lynchburg	0	2	0	0	0	1	1	0	1	15	18
Norfolk	1	1	0	0	0	0	1	0	0	2	29
Richmond	4	3	0	0	0	1	1	0	1	0	45
Roanoke	1	3	0	0	0	1	0	0	0	0	18
West Virginia:											
Charleston	2	1	0	0	0	0	1	0	0	0	21
Huntington	-------	3	-------	0	0	0	-------	1	0	0	-------
Wheeling	1	0	0	0	0	0	0	0	0	1	16
North Carolina:											
Raleigh	1	1	0	0	0	1	0	0	0	2	5
Wilmington	1	1	0	0	0	0	0	1	1	0	10
Winston-Salem	3	2	0	0	0	2	0	0	0	5	16
South Carolina:											
Charleston	0	2	0	0	0	3	3	0	0	0	20
Columbia	0	0	0	0	0	1	0	0	0	0	25
Greenville	0	0	-------	0	0	0	0	0	0	0	-------
Georgia:											
Atlanta	5	11	0	0	0	4	4	1	2	2	67
Brunswick	0	0	0	0	0	0	0	1	1	0	3
Savannah	0	0	0	0	0	6	0	5	0	0	20
Florida:											
Miami	0	0	0	0	0	0	0	0	0	0	17
Tampa	0	0	0	0	0	1	0	0	0	9	19
EAST SOUTH CENTRAL											
Kentucky:											
Covington	0	-------	0	-------	-------	-------	0	-------	-------	-------	-------
Lexington	-------	4	-------	0	0	-------		0	0	0	17
Louisville	-------	5	-------	0	0	1	-------	2	0	7	84
Tennessee:											
Memphis	3	6	0	0	0	3	5	4	1	1	70
Nashville	2	0	0	0	0	1	4	1	1	1	29
Alabama:											
Birmingham	4	6	0	0	0	2	3	4	0	0	57
Mobile	1	0	0	0	0	1	0	0	0	0	21
Montgomery	0	1	0	0	-------	-------	0	0	-------	0	-------

City reports for week ended September 24, 1932—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	0	0	0			1	0		0	
Little Rock	0	1	0	0	0	4	1	2	0	0	7
Louisiana:											
New Orleans	3	1	0	0	0	8	4	0	0	1	130
Shreveport	1	0	0	0	0	2	0	1	0	1	25
Oklahoma:											
Muskogee	1	0		0	0	0		1	0	0	
Oklahoma City	2	2	0	0	0	2	3	0	0	0	38
Tulsa	3	0	0	0			2	0		0	3
Texas:											
Dallas	3	9	0	0	0	1	2	2	1	3	50
Fort Worth	2	8	0	1	0	1	1	0	0	0	29
Galveston	1	0	0	0	0	2	0	1	0	0	16
Houston	1	5	0	1	0	3	0	0	1	0	71
San Antonio	0	1	0	0	0	10	1	0	0	0	62
MOUNTAIN											
Montana:											
Billings	1	2	0	0	0	0	0	0	0	0	7
Great Falls	1	1	0	0	0	0	0	1	0	0	6
Helena	0	0	0	0	0	0	0	0	0	2	6
Missoula	1	0	0	0	0	0	0	1	0	0	4
Idaho:											
Boise	0	0	0	3	0	0	0	0	0	0	5
Colorado:											
Denver	5	12	0	0	0	7	1	3	0	5	77
Pueblo	0	0	0	0	0	1	0	1	0	3	9
New Mexico:											
Albuquerque	0	1	0	0	0	2	1	1	0	0	8
Arizona:											
Phoenix	0	1		0	0	4	0	0	0	0	
Utah:											
Salt Lake City	2	1	0	0	0	3	1	2	0	2	32
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	8
PACIFIC											
Washington:											
Seattle	7	5	0	1			0	3		4	
Spokane	2	1	1	0			0	0		4	
Tacoma	1	4	1	0	0	0	0	0	0	0	17
Oregon:											
Portland	4	2	2	0	0	0	1	1	0	0	53
Salem	0	0	0	0	0	0		0	0	0	
California:											
Los Angeles	11	11	0	0	0	17	2	0	0	51	267
Sacramento	1	0	1	0	0	2	1	0	0	0	16
San Francisco	6	7	0	0	0	6	2	0	0	83	154

City reports for week ended September 24, 1932—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	1	0	0	0	0	0	5	0	1
Springfield	0	0	0	0	0	0	1	1	0
MIDDLE ATLANTIC									
New York:									
New York	7	3	0	0	0	0	18	9	1
New Jersey:									
Camden	0	0	0	0	0	0	0	2	0
Newark	0	0	0	0	0	0	2	1	0
Trenton	0	0	0	0	0	0	0	1	0
Pennsylvania:									
Philadelphia	1	0	0	0	0	0	2	65	8
Pittsburgh	0	0	0	0	0	0	1	2	0
Reading	0	0	0	0	0	0	0	1	0
EAST NORTH CENTRAL									
Indiana:									
Indianapolis	1	0	0	0	0	0	0	0	0
Illinois:									
Chicago	0	0	2	1	0	0	5	4	2
Michigan:									
Detroit	1	0	1	0	0	0	4	7	0
Flint	0	0	1	1	0	0	0	0	0
Wisconsin:									
Milwaukee	1	0	0	0	0	0	1	1	0
Racine	1	1	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis	2	0	0	0	0	0	1	0	0
Iowa:									
Des Moines	0	0	0	0	0	0	1	2	0
Sioux City	0	0	0	0	0	0	0	1	0
Missouri:									
St. Louis	2	1	0	0	0	0	1	0	0
SOUTH ATLANTIC									
District of Columbia:									
Washington	0	0	0	0	0	0	1	2	0
Virginia:									
Norfolk	0	0	0	0	0	0	0	1	0
Richmond	0	0	0	0	0	0	0	2	0
South Carolina:									
Columbia	0	1	0	0	0	0	0	0	0
Georgia:									
Atlanta	0	0	0	0	1	1	0	0	0
Savannah [1]	0	0	0	0	0	1	0	0	0
EAST SOUTH CENTRAL									
Kentucky:									
Louisville	0	0	0	0	0	0	-------	1	0
Alabama:									
Birmingham	0	1	0	0	1	0	0	0	0
Montgomery	0	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans	0	0	0	0	0	0	0	1	0
Texas:									
Houston	0	0	0	0	0	1	0	0	0
MOUNTAIN									
New Mexico:									
Albuquerque	0	0	0	0	1	1	1	0	0
PACIFIC									
Washington:									
Seattle	1	0	0	0	0	0	0	1	0
Spokane	0	0	0	0	0	0	0	1	0
California:									
Los Angeles	0	1	0	0	0	0	3	0	0
San Francisco	1	0	0	1	1	1	1	2	0

[1] Typhus fever: 3 cases at Savannah, Ga.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended September 17, 1932.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases for the week ended September 17, 1932, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis				1	3				4
Chicken pox			7	10	11	12	4	8	52
Diphtheria		1	16	51	13	2			83
Dysentery				5					5
Erysipelas					1	6			7
Influenza									1
Lethargic encephalitis				1			1		2
Measles			14	34	24	2	13	6	93
Mumps	3			50	6		1	13	73
Paratyphoid fever				5			1		6
Pneumonia				2			1		3
Poliomyelitis		1	98	17	2		1		119
Scarlet fever		8	30	24	10	4	4	4	84
Trachoma				1		6		1	8
Tuberculosis	1	3	48	66	39	64	5	16	242
Typhoid fever		1	44	11	5	4	1	2	68
Undulant fever				1				1	2
Whooping cough	3		70	106	37	8	2	5	231

No report was received from Prince Edward Island.

ITALY

Communicable diseases—Four weeks ended May 29, 1932.—During the four weeks ended May 29, 1932, cases of certain communicable diseases were reported in Italy as follows:

Disease	May 2-8		May 9-15		May 16-22		May 23-29	
	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected
Anthrax	10	9	21	20	21	20	17	14
Cerebrospinal meningitis	24	23	21	14	16	18	12	11
Chicken pox	295	111	358	123	285	114	268	126
Diphtheria and croup	376	212	338	219	326	171	380	212
Dysentery	10	10	4	4	3	2	5	4
Lethargic encephalitis	2	2	2	2	5	5	3	3
Measles	2,698	337	2,146	340	2,486	339	2,321	343
Poliomyelitis	10	10	10	7	23	16	10	9
Scarlet fever	326	103	385	128	358	113	328	129
Typhoid fever	193	121	197	125	184	123	202	128

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of the quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for September 30, 1932, pp. 1992–2005. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued October 28, 1932, and thereafter, at least for the time being, in the issue published on the last Friday of each month.)

Cholera

China.—Amoy, week ended September 17, 1932, 31 cases, 10 deaths; Canton, week ended September 24, 5 cases, 1 death; Hankow, week ended September 10, 29 cases, 4 deaths; Hong Kong, week ended September 24, 1 case, 1 death; Nanking, week ended September 17, 13 cases, 1 death; Shanghai, week ended September 17, 47 cases, 6 deaths; Tsingtao, week ended September 3, 5 cases, 1 death.

Cholera appeared in Chefoo, China, in June, 1932, but the second case did not occur until August. The peak was reached about August 15, with about 100 cases in the port. Latest reports indicated that the disease was declining rapidly.

Philippine Islands.—A case of cholera occurred in the city of Manila, P. I., October 4, 1932. During the week ended October 1 cases of cholera were reported in the Provinces of Samar, Iloilo, and Cebu.

Plague

Hawaii Territory.—A plague-infected rat was reported September 28, 1932, at Makawao, island of Maui, Territory of Hawaii.

Yellow Fever

Brazil.—Five cases of yellow fever were reported in the State of Pernambuco, Brazil, from June 28 to July 21, 1932.

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Experimental Transmission of Tularæmia by Mosquitoes

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg Gen. R. C. WILLIAMS, *Chief of Division*

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CONTENTS

PUBLIC HEALTH REPORTS

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EXPERIMENTAL TRANSMISSION OF TULARÆMIA BY MOSQUITOES

By CORNELIUS B. PHILIP, *Associate Entomologist*, GORDON E. DAVIS, *Bacteriologist*, and R. R. PARKER, *Special Expert, United States Public Health Service* [1]

Few pathogenic organisms show the ready adaptability of *Bacterium tularense* to varying host and environmental conditions. This is indicated by the diverse and unusual means by which tularæmia infection can be acquired by man, and by the several vectors of wide taxonomic distribution which are capable of natural or experimental transmission of the disease. Of the several groups of arthropods known or suspected to be concerned in the transmission of tularæmia, present evidence indicates that ticks are the most important both from the standpoint of the maintenance of infection in nature and its transfer to man. Among biting insects, however, one species is a proved mechanical carrier, several more having suitable host relationships have been shown experimentally to be potential transmitters, while still others are suspected agents because of circumstantial data. Mosquitoes are among the last group, and experiments planned to determine their possible rôle in the transmission of this infection are reported in this paper.

Several cases of human infection are on record in which mosquitoes have been suggested as possible vectors. Brown and Brown (1925) report the case of a man at El Paso, Tex., who was bitten on the cheek by what he presumed to be "a large mosquito." The time of day, 8 p. m., rather precludes deer-fly activity and strengthens his presumption. Geiger and Meyer (1929) list a case from Pine Valley, Nev., which was "attributed to mosquito bite." Two cases in which mosquitoes are mentioned, but other biting flies are not excluded, are tabulated in the Weekly Bulletin of the California State Department of Public Health (vol. 8, No. 43, 1929). In addition, a case which was associated with mosquito bite was reported near Ismay, Mont., by a physician well acquainted with the disease. All the above cases, excepting the last case, were confirmed as tularæmia by laboratory tests. All were of the ulcero-glandular type, and in all but the Pine Valley case, in which the location of the ulcer is not mentioned, the primary lesion occurred on the face.

[1] Contribution from the Rocky Mountain Spotted Fever Laboratory, Hamilton, Mont.

METHODS

In all but one of the following experiments the B. C. strain of *Bact. tularense* was used. This strain was recovered from a snowshoe rabbit in British Columbia (Parker, Hearle, and Bruce, 1931), and has been maintained by guinea pig passage since May, 1930. In guinea pigs it has been invariably fatal.

All species of mosquitoes used, excepting *Aëdes aegypti* Linn., were collected in the Bitterroot Valley. Some of them are rather widespread in the United States and Canada. Eggs of *A. aegypti* were obtained through the courtesy of Dr. Henry Beeuwkes, of the International Health Division, Rockefeller Foundation. This species was obtained for two reasons: First, it bites and breeds readily in captivity and is easily handled under cage conditions; and, second, it is a known vector of disease and might possibly prove a better host for the etiologic agent than local species.

All adult mosquitoes were reared from larvæ and pupæ taken in the field or, in the case of *A. aegypti*, from eggs laid in the laboratory. The technique of handling and sorting experimental lots was the same as that used by one of us (Philip, 1930, 1931) in experiments on yellow-fever transmission. Each lot was fed on an infected animal in a moribund condition and the blood-gorged specimens were segregated for subsequent testing. All injections of mosquito suspensions in salt solution were made intraperitoneally.

Guinea pigs surviving the experiments were routinely proved susceptible by testing with known infectious materials after varying periods of observation. Crucial tests involving positive transmission of *Bact. tularense*, as noted below, were checked by isolation of pure cultures which were agglutinated to titer by antitularense rabbit serum.

The period of survival in those test animals which became infected varied between a minimum of 2 and a maximum of 28 days, but was most frequently 4 to 7 days. Those dying on the second and twenty-eighth days exhibited just as typical lesions as did those dying after the usual course. Of the two animals which died on the second day, one had received 3 *A. nearcticus*, lot 1, and the other 1 *A. stimulans*, lot 13b, 1 and 7 days, respectively, after original infection of the mosquitoes involved. One animal, exhibiting the maximum period, died 28 days after injection of 1 *A. aegypti* 14 days after its infecting blood meal (see control, lot 9b, Table 2).

The few animals which died following unusually long periods after incubation were all associated with tests of relatively old mosquitoes of lots in which recoverable infection was just disappearing. This suggests some qualitative change of the organism resulting in decrease of virulence with continued residence in certain species.

EXPERIMENTAL

The following local species of mosquitoes were tested under various experimental conditions: *Aëdes canadensis*, 5 lots; *A. dorsalis*, 1 lot; *A. nearcticus*, 2 lots; *A. stimulans*, 5 lots; and *A. vexans*, 4 lots; *Theobaldia incidens*, 1 lot; *Culex tarsalis*, 1 lot. In addition 17 lots of *A. aegypti* were used.

Answers were desired to the following five questions: (1) Does *Bact. tularense* remain viable when ingested with the blood meal of mosquitoes feeding upon infected animals, and what is the duration of such viability? If the infection does persist after ingestion: (2) Can it be transferred to normal hosts by biting or by the crushing of the mosquitoes on the skin, or both? If by biting, is a period of incubation in the insect necessary? (3) Can *Bact. tularense* be transmitted by infected females to their offspring? (4) Is the excrement of such females infective and for how long after original infection? (5) Can males become infected by copulation with infected females?

(1) VIABILITY OF TULARÆMIA ORGANISMS IN MOSQUITOES

It was soon determined that various species of mosquitoes fed on infected guinea pigs retained the infection. In establishing the longevity of *Bact. tularense* in an infected lot, a few of the mosquitoes were removed from the cage at certain intervals after feeding, stupefied with tobacco smoke, macerated in physiological salt solution, and injected intraperitoneally into normal guinea pigs.

TABLE 1.—*The observed duration of Bact. tularense in mosquitoes as determined by injection into guinea pigs* [1]

Lot No.	Species of mosquito	Days after infective feed	Number of mosquitoes injected	Number of pigs injected	Result in test animals	Remarks
1	*A. nearcticus*	11	1	1	No reaction, 16 days	Longevity of lot too short for later test.
		11	1	1	Died, tularæmia	
8	*A. vexans*	15	4	1	do	
		16	3	1	No reaction, 12 days	
		27	8	8	7, no reaction, 17 days	1 animal died of intercurrent infection, eleventh day.
13	*A. stimulans*	3	7	7	5 died, tularæmia, 2, no reaction, 23 days	
		7	5	5	3 died, tularæmia; 2, no reaction, 83 days.	
		14	3	3	No reaction, 76 days	
14	do	7	4	4	1 died, tularæmia, 3, no reaction, 83 days.	
13c	*A. canadensis*	3	1	1	Died, tularæmia	
		14	1	1	No reaction, 76 days	
8	*A. aegypti*	2	4	1	Died, tularæmia	
		5	3	1	No reaction, 35 days	
		12	5	5	No reaction, 24 days	

[1] *Aëdes dorsalis* and *Culex tarsalis* were not available in sufficient numbers to produce significant tests, although 3 of the latter were fed simultaneously with *T. incidens* (lot 17). Injection of 1 *C. tarsalis* at 11 days was negative.

TABLE 1.—*The observed duration of Bact. tularense in mosquitoes as determined by injection into guinea pigs*—Continued

Lot No.	Species of mosquito	Days after infective feed	Number of mosquitoes injected	Number of pigs injected	Result in test animals	Remarks
9b	*A. aegypti*	14	1	1	Died, tularæmia	No mosquitoes available for further tests.
15b	do	18	1	1	No reaction, 64 days	
		18	1	1	Died, tularæmia	Do.
21	do	1	1	1	do	Rubbed on clipped skin.
		6	4	4	No reaction, 35 days	
22	do	3	4	4	Died, tularæmia	
		7	4	4	No reaction, 23 days	
		13	6	6	No reaction, 16 days	
		16	5	1	No reaction, 13 days	
		16	4	1	No reaction, 13 days	
17	*T. incidens*	5	3	3	Died, tularæmia	
		11	1	1	do	
		11	1	1	No reaction, 22 days	
		18	3	3	2 died, tularæmia; 1, no reaction, 17 days	
		23	3	3	No reaction, 54 days	
		35	6	6	2 died, tularæmia, 4, no reaction, 44 days.	

The duration of the infection in the bodies of infected mosquitoes as determined by such periodic injection is indicated by the results shown in Table 1. Since, as previously mentioned, death of test animals has occurred infrequently after a protracted period, the number of days of observation of those guinea pigs listed with "no reaction" has been included.

It will be noted in the table that some individuals of *A. nearcticus* and *T. incidens* retained viable organisms for the length of life of each lot, 11 and 35 days, respectively. The maximum periods for which infection was demonstrated in the other species were as follows: *A. vexans*, 15 days; *A. stimulans*, 7 days; and *A. canadensis*, 3 days.

It is probable that the data presented in Table 1 do not represent the longest possible duration of infection in these species, but they do indicate the variability in individual mosquitoes and lots that was encountered in the laboratory, as shown particularly in *A. aegypti*.

On these data alone, *T. incidens* appears to be the most favorable of the species tested for retention of the infection. In this connection it is possible that the greater amount of blood ingested by this large species was a contributory factor; but there also appears to be other variables which can not be excluded, as will be mentioned later.

A number of tests made on other lots, particularly of *A. aegypti*, have not been tabulated, because of complete failure to show infection at any stage, although the mosquitoes were fed on guinea pigs which showed characteristic lesions at necropsy.

Infection in dead, disintegrating mosquitoes.—The last, living *T. incidens*, lot 17, Table 1, was removed for testing 35 days after the

original infecting blood meal. A moisture pad in the cage was removed with several dead insects upon it and set aside for subsequent experiments. After four days, six of these disintegrating insects were macerated in salt solution and injected into a normal animal, which died of typical tularæmia five days later. *Bact. tularense* therefore remained viable not only during the life of the mosquitoes but also for four days after death, a total of 39 days after their initial infecting blood meal.

(2) TRANSMISSION TESTS WITH ADULT FEMALE MOSQUITOES

Transfer of the infection to healthy guinea pigs by mosquito feeding was first attempted after varying periods of "incubation" such as are known to be necessary in the essential arthropod vectors of certain diseases. Table 2 presents results of such test feedings at varying intervals following the infecting blood meal.

TABLE 2.—*Test feeds of "incubated" mosquitoes infected with Bact. tularense*

Lot No.	Species of mosquito	Days after infective meal	Number of mosquitoes feeding	Result in test animals	Controls by injection of mosquitoes previously fed: Number of mosquitoes injected	Number of guinea pigs injected	Result in test animals
1	*A. nearcticus*	11	2	No reaction, 16 days	1	1	Died seventeenth day, intercurrent infection.
					1	1	Died, tularæmia, 3 days.
3	*A. vexans*	15	11	No reaction; killed for transfer eleventh day; no reaction in transfer.	4	1	Do.
13b	*A. stimulans*	7	8	No reaction, 83 days	5	5	5 pigs received 1 mosquito each; 3 of 5 died of tularæmia.
6	*A. aegypti*	4	3	No reaction, 26 days	2	1	Died, tularæmia, 9 days.
9b	do	14	1	No reaction, 108 days	1	1	Died, tularæmia, 28 days.

Difficulties were encountered in obtaining the necessary longevity of certain species of mosquitoes to make possible periodic removal of a few for test purposes. Test feedings on normal animals after varying periods of "incubation" were also a matter of tedious work with individual specimens in all lots excepting those of *A. aegypti*. *T. incidens* was never induced to accept a second or testing blood meal.

According to these data, "incubation" of infected mosquitoes does not appear to influence transmission to healthy guinea pigs.

Mechanical transmission.—To obtain tests by interrupted feeding, a modification of the mosquito catcher described by Philip (1931) was used to transfer mosquitoes which had commenced feeding on a donor animal in moribund condition to a normal, immobilized guinea pig in another cage. The insects were excited as little as possible,

and many settled down to resume feeding almost immediately; the majority would not feed until released from the tube of the catcher. In every test recounted in Table 3 at least one or two of the attempts to effect mechanical transmission to the normal animals were immediate, and none occurred over 15 minutes from the time the interrupted mosquito was liberated in the test cage. Other tests are not listed owing to failure of the control injections.

TABLE 3.—*Experiments on mechanical transmission by mosquitoes interrupted in feeding*

Lot No.	Species of mosquito	Number of mosquitoes completing interrupted feed [1]	Result in test animals	Controls by injection of mosquitoes previously fed	
				Number of mosquitoes injected	Result in test animals
5a	*A. vexans*	6	No reaction. Killed for transfer 12th day, no reaction in transfer.	5	Died of tularæmia.
8a	*A. aegypti*	19	Died 18th day, unknown cause, transfer twice without results	4	Do
9a	do	8	Died, tularæmia, in 7 days	4	Do.
10a	*A. stimulans*	3	No reaction, 102 days	2 1	Do. Do.
				2	Do.
10c	*A. canadensis*	5	No reaction, 102 days	2 1	Do. Do
11a	*A. aegypti*	2	do	1 1	Do Do
13a	*A. stimulans*	7	No reaction, 88 days	7	7 animals received 1 mosquito each, 5 died of tularæmia, 2 showed no reaction during 23 days.
13c	*A. canadensis*	2	do	1	Died of tularæmia.

[1] One normal guinea pig used in each instance.

Of eight experiments using four species of mosquitoes (*vexans*, *stimulans*, *canadensis*, and *aegypti*), only one test, with eight *A. aegypti*, was positive. The animal died atypically, but characteristic infection was obtained by transfer to a second guinea pig. Heart blood of the latter yielded a pure culture of *Bact. tularense*.

Tests were also conducted to determine the possibility of producing infection by crushing infected insects on the skin of healthy guinea pigs. Two methods were used to simulate natural reactions to biting mosquitoes, especially on the part of human beings: One method involved crushing by simple slapping of stupefied single insects with a flexible, sterile instrument, on the carefully clipped skin of test animals; the other consisted of a similar procedure followed by rubbing the crushed tissues against the skin. Since the hair of the guinea pig had been closely clipped in such manner as to avoid abrasions, and no puncture had been made by the mosquito previous to crushing, there was obviously less chance for penetration of the organisms than

would be encountered naturally when crushing would likely occur over the site of bite on the smooth skin of a person.

The results of three experiments using *A. aegypti* are presented in Table 4. Similar attempts with 4-, 6-, and 7-day-old lots are not listed, owing again to absence of infection in controls. It will be noticed that the controls for lot 25b also failed, although one test by crushing of the insect on the skin of a guinea pig was positive. Only 2 of 16 tests produced infection, both animals exhibiting typical lesions at necropsy. Pure cultures were obtained from both test guinea pigs.

TABLE 4.—*Experiments on mechanical transmission by crushing of infected A. aegypti on skin of guinea pigs*

Lot No.	Number of mosquitoes used	Days after infective feed	Method of exposure	Result in test animals
21	1	1	Crushed by slapping	Died twelfth day of intercurrent infection.
	1	1	do	No reaction, 35 days.
	1	1	do	Do
	1	1	Crushed and rubbed	Do.
	1	1	do	Died of tularæmia, 7 days; culture and agglutination positive.
	1	1	do	No reaction, 35 days.
22	1	3	Crushed by slapping	No reaction, 27 days.
	1	3	do	Do.
	1	3	Crushed and rubbed	Do.
	1	3	do	Do
	1	3	Injected intraperitoneally	Died of tularæmia (control).
	1	3	do	Do.
	1	3	do	Do.
	1	3	do	Do
25b	1	9	Crushed by slapping	No reaction.
	1	9	do	Do
	1	9	do	Died of tularæmia, 7 days; culture and agglutination positive
	1	9	Crushed and rubbed	No reaction, 35 days.
	1	9	do	Do
	1	9	do	Do.
	1	9	Injected intraperitoneally	No reaction (control).
	1	9	do	Do.
	2	9	do	Do.
	3	9	do	Do

Greater success with this type of experiment might have been secured had the larger specimens of *T. incidens* been available.

(3) INFECTIVITY OF EGGS LAID BY INFECTED A. AEGYPTI

Tests of eggs of local, reared species were not possible, owing to their refusal to mate or oviposit in confinement. Three batches of eggs laid by different lots of *A. aegypti* 5 days, 7 days, and 12 days, respectively, after their original infection were washed in distilled water several times to remove as much external contamination as possible, suspended in salt solution, and injected intraperitoneally into 5 test pigs with negative results. The parent lots of mosquitoes were each proved to be infected by injection of a few insects into normal animals.

(4) INFECTIVITY OF MOSQUITO EXCREMENT

Fed female mosquitoes generally pass droplets of whitish feces after an initial period of varying duration following their first blood meal. Droplets of dark, altered blood are then excreted for a time. The chances are good that the latter contains viable organisms when freshly deposited. Transfer of infection from this source could conceivably take place by the deposition, on the skin of a healthy person or animal, of excrement by a mosquito seeking to complete an interrupted blood meal begun on an infected host. Persons bitten are prone to scratch or rub the irritated area and deposited feces could thus be introduced into the puncture or other skin abrasion, or infection might even take place through the unbroken skin. Chances for infection from this source are better with only partially fed mosquitoes, as *completely* blood-gorged specimens will not usually imbibe blood for several days until deposition of the resultant, developing batch of eggs is accomplished.

Fecal infectivity tests have resulted in 3 infections in test animals. These were made with the whitish droplets of *A. aegypti* (lot 24) at 3 days, and dark excrement of the same lot at 4 days and of *A. vexans* (lot 5a) at 24 hours, respectively, after the original blood meal. Thirteen negative results followed similar attempts 2 to 9 days after infection (*A. vexans*, *A. stimulans*, *A. canadensis*, and *A. aegypti*). The second positive test of *A. aegypti* was confirmed by isolation of a pure culture of *Bact. tularense* from the test guinea pig.

Freshly deposited feces collected from the sides of glass flasks in which known infected insects were temporarily segregated were employed in the above experiments. All tests were made by wiping the droplets onto saline-moistened cotton wisps which were in turn rubbed on the abraded skin of normal guinea pigs.

(5) INFECTIVITY OF MALE A. AEGYPTI AFTER COPULATION WITH INFECTED FEMALES

It has been noted by several investigators that yellow-fever virus can be passed from infected females to males of *A. aegypti* during copulation. This is suggested as one factor in maintaining endemic foci. This species of mosquito was used for similar tests in the present tularæmia studies, because the local species refuse to mate in confinement. Tests with 4 and 8 male mosquitoes from lot 8b, 5 and 7 days, respectively, after original infection of the females, and 4 from lot 9b at 4 days, were negative. On the other hand, the injection of 6 males, removed from lot 24 five days after the infected blood-meal of the females, caused the death of the test animals with typical lesions in 5 days.

As in routine injections of female mosquitoes, the above males were all stupefied with tobacco smoke, macerated in salt solution, and injected intraperitoneally. To remove possible external contamination

before maceration, they had been thoroughly washed in distilled water by vigorous shaking (so vigorous, in fact, that many of the appendages were broken loose from the insects).

DISCUSSION

It is evident that certain mosquitoes, like several other blood-sucking insects, are capable of ingesting and retaining *Bact. tularense* for variable periods of time. It appears equally evident, however, that no essential host relationship is indicated by the experimental results.

On the other hand, the several positive transmission experiments suggest that human infection might occur mechanically (1) through interrupted feeding between infected and healthy hosts, (2) by excrement deposited during feeding, or (3) by the crushing of infected mosquitoes on the skin, particularly if either of the last two conditions are followed by rubbing or scratching. Mechanical infection by these means, under natural conditions, involves two considerations, viz (1) the frequency with which mosquitoes of suitable host habits would have opportunity to feed on infected rodents or other animals,[1] and (2) even after becoming infected, the infrequency with which transfer could be affected judged by the small proportion of positive experiments reported above (1 out of 8 tests by interrupted feeding, 2 of 16 by crushing of the insect on the skin, and 3 of 13 using mosquito excrement).

As regards interrupted feeding, these experiments further suggest that the transfer of infection is unlikely to occur unless the interval is very short. Transfer could be accomplished either on the contaminated mouth parts or by regurgitation. Theoretical considerations practically eliminate regurgitation as a factor on the basis of observations by several investigators, including MacGregor (1931), who says, among other pertinent statements, "Although strong aspiratory effort is possible it appears that the mosquito is incapable of any expulsive effort directed to the discharge of fluid from the buccal cavity, or even the lumen of the proboscis itself. Any remnant of liquid in the

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[1] Since there is little authentic information concerning the extent to which mosquitoes feed on rodents, it is of interest to call attention to an article by W. B Grange, which has but recently come to hand ("Observations on the snowshoe hare, *Lepus americanus phaeonatus* Allen " Journal of Mammalology, vol 13, No. 1, pp. 1-19, February, 1932). The author reports having confined a number of snowshoe hares in an outdoor pen under natural habitat conditions. All but one (which was killed by a cat) were dead within a month. The cause of death was not determined, but the author observed that they were "harrassed by great clouds of mosquitoes" which, he suggests, might have been concerned A letter to the author requesting more detailed information as to the extent to which mosquitoes were actually observed to feed on the hares elicited the following additional information.

"In reply to your inquiry whether I have ever observed mosquitoes in the actual act of feeding on rabbits, will say that the clouds of mosquitoes mentioned in the article as harassing the snowshoe hares did very definitely feed on the animals. I meant to convey this by implication, but should have stated it definitely. The mosquitoes, engorged with blood, were noted especially on the ears, on the eyelids and eye region generally, and about the nose. The hares shook their heads repeatedly in the effort to dislodge the mosquitoes, and they also scratched. I can certainly vouch for this very definite instance of mosquitoes feeding on hares, and I recall a few years ago watching a wild hare (pursued by a dog) which stopped close to me, I believe it was in June, and which shook its head in a similar way in attempting to dislodge mosquitoes."

proboscis is always cleared by aspiration." Strong presumptive evidence that regurgitation does not take place is also afforded in the study of yellow fever in which lethal doses of 0.0000001 c c of blood virus have frequently been observed in tests with monkeys; and yet Philip (1930b) has reported negative results after interrupted feeding of 39 to 100 *A. aegypti* in three tests. The least regurgitation by any one insect after resumption of feeding on a normal animal should have produced infection.

The one positive transmission of tularæmia by interrupted feeding of *A. aegypti* (Table 3) therefore probably involved direct transfer on contaminated mouth parts rather than regurgitation.

So many variables enter into mosquito experiments in the laboratory that it is difficult to say that any one of the species of mosquitoes used is more favorable to persistence of the infection (notwithstanding the results shown in Table 1).

That the difference noted in the longer persistence of *Bact. tularense* in *T. incidens* than in other species is not necessarily specific is shown by the variable results of the more numerous tests of *A. aegypti*. Different lots of the latter species were tested continuously over a period of approximately 1½ years and failures to recover infection in later experiments were much more frequent than in earlier tests under apparently the same donor conditions, and when using the same strain of tularæmia. Variations in this respect might be accounted for by changes in some intrinsic quality of the strain over a period of time, or by variations of infectivity of the blood of donor guinea pigs at the time of exposure.

We have found that the degree of bacteremia varies at different stages of infection in the same guinea pig and also at corresponding periods in different guinea pigs. This would obviously affect the number of organisms in the small amounts of blood ingested at any particular time by mosquitoes.

So far as a possible difference of blood infectivity is concerned, it was the practice to expose infected animals only when they were near death, at which time experiments (unpublished) have indicated that the bacteremia is most marked. However, if the syndromes of passage animals and necropsy findings are criteria, no qualitative change in the strain has been perceptible.

Lack of infectivity of eggs from infected *A. aegypti* and the failure of secondary feedings of "incubated" mosquitoes to infect suggest that *Bact. tularense* is confined to the alimentary tract, where it is eventually lost by excretion or gradually dies out. In this connection the isolated instance of recovered infection using male *A. aegypti* after copulation with infected females can hardly be explained on the basis of tissue invasion by *Bact. tularense* without more extended data.

SUMMARY AND CONCLUSIONS

The rôle played by mosquitoes in transmission of tularæmia was investigated, using *Aëdes nearcticus*, *A. vexans*, *A. dorsalis*, *A. stimulans*, *A. canadensis*, *Theobaldia incidens*, and *Culex tarsalis* reared from local collections in the Bitterroot Valley, Mont., and *A. aegypti* from imported stock.

Mechanical transmission was shown to be occasionally possible, infection being transferred from infected to healthy guinea pigs by interrupted feeding of *A. aegypti* in one instance, and twice by crushing single specimens on the unbroken skin of guinea pigs, 24 hours and 9 days, respectively, after original infecting feed of the mosquitoes.

Viable organisms were recovered for varying periods (up to death of the lot, 35 days, in *T. incidens*) following injection of killed, emulsified mosquitoes into healthy guinea pigs, and in dead specimens of the above lot 4 days later (39 days after original infecting blood meal). Duration of recoverable infection was variable in different lots of the same species. Transmission by "incubated" mosquitoes similar to that which occurs in the case of ticks was not accomplished.

Excrement of *A. vexans* passed 24 hours after infecting bloodmeals and of *A. aegypti* 3 and 4 days after such meals was found to be infectious, although other tests at 2 to 9 days proved to be negative. Injections of eggs from lots of infected *A. aegypti* were also negative.

One of four attempts to recover the infection by injection into guinea pigs of male *A. aegypti* previously confined with infected females was successful. The males were thoroughly and vigorously washed before injection. This is of but theoretical interest in view of the other results obtained.

It appears that mosquitoes which had fed on an animal infected with tularæmia might infect persons mechanically (1) by biting, after having been interrupted during their meal on the infected animal (2) by being crushed on the skin with or without subsequent rubbing, and (3) by deposition of excrement on the skin. However, it is likely that suitable conditions to effect such transfers in nature are rare, and it is probable that at most only infrequent infection of man would occur in this manner.

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PUBLIC HEALTH SERVICE PUBLICATIONS

A List of Publications Issued During the Period January–June, 1932

There is printed herewith a list of publications of the United States Public Health Service issued during the period January–June, 1932.

The most important articles that appear each week in the PUBLIC HEALTH REPORTS are reprinted in pamphlet form, making possible a wider and more economical distribution of information that is of especial value and interest to public-health workers and the general public.

All of the publications listed below except those marked with an asterisk (*) are available for free distribution and as long as the supply lasts may be obtained by addressing the Surgeon General, United States Public Health Service, Washington, D. C. Those publications marked with an asterisk are not available for free distribution but may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C., *at the prices noted.* (No remittances should be sent to the Public Health Service.)

Periodicals

Public Health Reports (weekly), January-June, Vol. 47, Nos. 1–26, pages 1 to 1418.

Venereal Disease Information (monthly), January–June, Vol. XIII, Nos. 1–6, pages 1 to 252. (Index included in June issue.)

Reprints from the Public Health Reports

1525. Typhus fever. Transmission of endemic typhus by rubbing either crushed infected fleas or infected flea feces into wounds. By R. E. Dyer, E. T. Ceder, W. G. Workman, A. Rumreich, and L. F. Badger. January 15, 1932. 3 pages.
1526. Public Health Service publications. A list of publications issued during the period July–December, 1931. January 29, 1932. 4 pages.
1527. The health officer's viewpoint of child hygiene. By Taliaferro Clark. February 26, 1932. 12 pages.
1528. The impinger dust sampling apparatus as used by the United States Public Health Service. By Leonard Greenburg and J. J. Bloomfield. March 18, 1932. 22 pages.
1529. Rat infestation inspection of vessels. By C. L. Williams. April 1, 1932. 35 pages.
1530. Relative incidence of typhoid fever in urban and rural areas of Tennessee. By D. F. Milam and Elbridge Sibley. April 8, 1932. 6 pages.

1531. Typhus fever. The experimental transmission of endemic typhus fever of the United States by the rat flea Ceratophyllus fasciatus. By R. E. Dyer, W. G. Workman, L. F. Badger, and A. Rumreich. April 22, 1932. 2 pages.

1532. Typhus fever. The multiplication of the virus of endemic typhus in the rat flea Xenopsylla cheopis. By R. E. Dyer, W. G. Workman, E. T. Ceder, L. F Badger, and A. Rumreich. April 29, 1932. 8 pages.

1533. The standardization of scarlet fever streptococcus antitoxin. A method employing the ear of the white rabbit. By M. V. Veldee. May 6, 1932. 14 pages.

1534. The action of colloidal Paris green on the larvae of Culex apicalis. A preliminary report. By H. G. Grant, Barclay M Newman, and Pierce D. Wood. June 3, 1932. 9 pages.

1535. Duration of viability and virulence of Bacillus pestis. By Edward Francis. June 10, 1932. 8 pages.

1536. The preparation of a vaccine from fleas infected with endemic typhus. By R. E. Dyer, W. G. Workman, A. Rumreich, and L. F. Badger. June 17, 1932. 3 pages.

1537. Some instances of rapid rat infestation of vessels. By C. L. Williams. June 17, 1932. 5 pages.

1538. Acute respiratory disease in University of Michigan students, 1917–1931. Incidence of cases attended by university physicians among students at the university health service. By Warren E. Forsythe. June 24, 1932. 11 pages.

Public Health Bulletins

*184. Health departments of States and Provinces of the United States and Canada. By John A. Ferrell, Wilson G. Smillie, Platt W. Covington, and Pauline A. Mead. Revised April, 1932. 785 pages. 75 cents.

*201. Transactions of the Twenty-Eighth Annual Conference of State and Territorial Health Officers with the United States Public Health Service, held at Washington, D. C., June 18, 19, and 20, 1930. April, 1932. 113 pages. 10 cents.

National Institute of Health Bulletins

*159. Key-catalogue of parasites reported for insectivora (moles, shrews, etc.), with their possible public health importance. By C. W. Stiles and Samuel F. Stanley. June, 1931. 121 pages 15 cents.

Unnumbered Publications

*National negro health week program. This pamphlet is published annually, usually about the middle of March, for community leaders in an effort to suggest ways and means by which interested individuals and organizations may be organized for a concerted and effective attack upon the community's disease problems. Eighteenth annual observance. 1932. 16 pages. 5 cents.

*National negro health week poster. Eighteenth annual observance. 1932. (Out of print.)

*Index to Public Health Reports Vol. 47, Part 2 (July–December, 1931). 27 pages. 5 cents.

Reprints from Venereal Disease Information

38. Survey of the venereal diseases in the city of Baltimore, Baltimore County, and the four contiguous counties. By Taliaferro Clark and Lida Usilton. From Venereal Disease Information, Vol. XII, No. 10. 20 pages.

39. A second study of the prevalence of syphilis and gonorrhea in upstate New York. By Albert Pfeiffer and Herbert W. Cummings. From Venereal Disease Information, Vol. XII, No. 11. 18 pages.

COURT DECISION RELATING TO PUBLIC HEALTH

County ordinance, imposing license fee in connection with sale, etc., of butter substitutes, held invalid.—(California District Court of Appeal, First District; Ex parte Bock, 13 P. (2d) 836; decided Aug. 18, 1932.) Marin County passed an ordinance making it unlawful for any person, firm, or corporation outside of the limits of incorporated cities "to manufacture, buy, sell, deal in, or furnish to his, its, or their patrons, or to have in possession for any purpose whatsoever, other than for consumption in his own family or for transportation in case of a common carrier, any oleomargarine or other substitute for butter" without having a license issued by the county tax collector. The fee for such license was $200 a year.

There was in effect at the same time a State statute regulating the manufacture and sale of oleomargarine and providing, among other things, for the payment of license taxes. In the case of retailers, the county tax imposed by the ordinance was 40 times as large as the tax required under the State law.

A person who was engaged in the business of selling oleomargarine and who had some of the product in his possession for the purpose of sale failed to obtain a county license and was arrested. In a habeas corpus proceeding he assailed the ordinance as being invalid. It was conceded that the ordinance had to stand or fall as a regulatory measure because a county could impose a license tax for the purpose of regulation only and could not impose such a tax for the purpose of revenue. It was also conceded that an ordinance purporting to prohibit the manufacture or sale of oleomargarine would be unconstitutional and that an ordinance indirectly accomplishing that result by means of imposing a tax in such amount as to be prohibitory would also be unconstitutional. The petitioner's main contention was that the ordinance was invalid because the tax prescribed was prohibitory in amount.

The district court of appeal stated that it had no hesitancy in declaring the ordinance invalid. "The only semblance of a regulatory provision," said the court, "is the one requiring that the county license, as well as the State license, be conspicuously displayed. In view of the provisions of section 12½ of the general dairy law, we can not but conclude that this purported added regulation was but a pretense, inserted in an attempt to justify the imposition of a tax. It was, in effect, no regulation at all * * *." The $200 tax imposed upon every retailer, irrespective of the amount of sales, was

declared by the court to be clearly excessive and prohibitory, and it was stated that the conclusion was inescapable that the tax was imposed either for the purpose of revenue or of indirectly prohibiting the sale of oleomargarine.

DEATHS DURING WEEK ENDED OCTOBER 1, 1932

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Oct. 1, 1932	Corresponding week, 1931
Data from 85 large cities of the United States:		
Total deaths	6,593	6,641
Deaths per 1,000 population, annual basis	9.4	9.6
Deaths under 1 year of age	562	576
Deaths under 1 year of age per 1,000 estimated live births [1]	47	46
Deaths per 1,000 population, annual basis, first 39 weeks of year	11.2	12.0
Data from industrial insurance companies:		
Policies in force	70,415,889	74,736,758
Number of death claims	11,909	13,557
Death claims per 1,000 policies in force, annual rate	8.8	9.5
Death claims per 1,000 policies, first 39 weeks of year, annual rate	9.6	9.9

[1] 1932, 81 cities; 1931, 77 cities.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended October 8, 1932, and October 10, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended October 8, 1932, and October 10, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Oct. 8, 1932	Week ended Oct. 10, 1931	Week ended Oct. 8, 1932	Week ended Oct. 10, 1931	Week ended Oct. 8, 1932	Week ended Oct. 10, 1931	Week ended Oct. 8, 1932	Week ended Oct. 10, 1931
New England States:								
Maine	2	4	5	1	2	46	0	0
New Hampshire	2	1			1	1	0	0
Vermont	1				1	1	0	0
Massachusetts	29	56	4	4	22	22	3	1
Rhode Island	5	2				53	0	0
Connecticut	5	6	5	1	5	11	0	1
Middle Atlantic States:								
New York	63	80	[1] 9	[1] 2	125	58	4	5
New Jersey	26	15	13	4	58	2	1	4
Pennsylvania	76	81			41	118	2	7
East North Central States:								
Ohio	82	111	5	7	19	2	0	1
Indiana	42	36	23		22	7	12	1
Illinois	138	79	12	62	21	8	6	4
Michigan	12	29	3	2	38	25	2	4
Wisconsin	19	16	23	14	39	12	1	2
West North Central States:								
Minnesota	16	15			60	2	0	3
Iowa	11	6			1	1	1	1
Missouri	54	73	2	1	8	1	4	2
North Dakota		5			6	18	0	1
South Dakota	2	17	1			9	0	1
Nebraska	32	17	3		14		0	0
Kansas	35	19	2	3	2	10	0	1
South Atlantic States:								
Delaware	1	4					0	0
Maryland [2, 3]	26	68	8	6		8	0	0
District of Columbia [3]	8	10			1	1	0	2
Virginia	65				45		2	
West Virginia	67	55	4	19	7	9	0	3
North Carolina [3]	84	199	17	2	22	14	1	2
South Carolina [3]	24	32	285	154	28	4	0	1
Georgia [4]	73	32	19	11	2		1	0
Florida	17	18	2	1	1	16	0	0
East South Central States:								
Kentucky	81	175					1	2
Tennessee	112	171	15	5	1	1	2	2
Alabama [3]	119	101	14		1	11	0	4
Mississippi	40	138					1	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended October 8, 1932, and October 10, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Oct. 8, 1932	Week ended Oct. 10, 1931	Week ended Oct. 8, 1932	Week ended Oct. 10, 1931	Week ended Oct. 8, 1932	Week ended Oct. 10, 1931	Week ended Oct. 8, 1932	Week ended Oct. 10, 1931
West South Central States:								
Arkansas	42	44	10		4	3	0	0
Louisiana [3]	37	22	14	3	2	2	0	0
Oklahoma [4]	95	107	26	8	1		1	0
Texas [3]	151	35	59	12		2	0	0
Mountain States:								
Montana		1	2		93	10	0	0
Idaho	1	3				2	1	0
Wyoming						1	0	0
Colorado	10	11			2	3	0	1
New Mexico	8	9	9				0	0
Arizona	3	6	1	7	1	1	0	2
Utah [2]	1	1	1		4	1	0	0
Pacific States:								
Washington	11	6			2	7	0	0
Oregon	2	1	141	22	28	6	0	1
California	58	61	166	73	29	71	1	3
Total	1,788	1,978	903	424	759	575	47	62

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Oct. 8, 1932	Week ended Oct. 10, 1931	Week ended Oct. 8, 1932	Week ended Oct. 10, 1931	Week ended Oct. 8, 1932	Week ended Oct. 10, 1931	Week ended Oct. 8, 1932	Week ended Oct. 10, 1931
New England States:								
Maine	12	8	17	9	0	0	3	3
New Hampshire	0	3	7	5	0	0	0	1
Vermont	0	6	8	4	0	1	0	2
Massachusetts	3	72	158	151	0	0	5	12
Rhode Island	0	5	31	7	0	0	2	0
Connecticut	0	45	38	9	0	0	3	5
Middle Atlantic States:								
New York	17	239	210	184	0	0	55	35
New Jersey	23	50	99	54	0	0	18	12
Pennsylvania	61	40	161	187	0	0	71	69
East North Central States:								
Ohio	2	8	276	178	1	0	69	57
Indiana	3	5	78	48	0	3	30	12
Illinois	7	61	201	178	3	16	44	51
Michigan	8	74	146	102	1	2	22	20
Wisconsin	2	49	32	22	3	1	6	3
West North Central States:								
Minnesota	5	58	48	36	1	0	6	3
Iowa	3	13	34	31	1	5	13	5
Missouri	0	7	102	107	0	8	39	15
North Dakota	2	1	1	19	2	5	6	5
South Dakota	0	0	14	7	0	2	0	8
Nebraska	1	1	34	18	3	1	1	1
Kansas	2	1	63	46	1	2	7	13
South Atlantic States:								
Delaware	0	1	6	5	0	0	4	2
Maryland [2, 3]	1	5	50	61	0	0	36	33
District of Columbia [3]	3	3	4	15	0	0	2	9
Virginia	1	1	62		0		21	
West Virginia	1	3	72	43	0	0	74	79
North Carolina [3]	2	7	71	111	1	3	8	23
South Carolina [3]	0	0	4	9	0	0	20	22
Georgia [3]	0	0	37	31	0	2	22	28
Florida	0	0	7	0	0	0	2	3
East South Central States:								
Kentucky	3	1	81	68	0	0	29	68
Tennessee	5	3	75	63	1	1	31	30
Alabama [3]	2	0	66	66	0	0	22	33
Mississippi	5	0	30	40	0	1	6	27

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended October 8, 1932, and October 10, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Oct. 8, 1932	Week ended Oct. 10, 1931	Week ended Oct. 8, 1932	Week ended Oct. 10, 1931	Week ended Oct. 8, 1932	Week ended Oct. 10, 1931	Week ended Oct. 8, 1932	Week ended Oct. 10, 1931
West South Central States:								
Arkansas	0	0	22	23	0	1	21	19
Louisiana [3]	6	1	10	17	2	2	9	40
Oklahoma [4]	0	0	36	38	2	1	30	60
Texas [3]	4	0	46	39	3	5	29	36
Mountain States:								
Montana	0	7	4	10	0	0	1	0
Idaho	0	0	1	10	0	8	10	4
Wyoming	0	0	6	5	0	0	1	1
Colorado	0	1	26	12	0	0	12	1
New Mexico	1	4	13	7	0	0	15	14
Arizona	0	1	7	1	0	0	2	2
Utah [2]	0	0	1	6	0	1	2	4
Pacific States:								
Washington	3	10	33	26	7	5	8	4
Oregon	0	0	18	8	2	1	9	8
California	5	6	88	67	4	9	13	15
Total	188	800	2,634	2,186	38	86	839	901

[1] New York City only.
[2] Week ended Friday.
[3] Typhus fever, week ended Oct. 8, 1932, 51 cases: 2 cases in Maryland, 1 case in District of Columbia, 3 cases in North Carolina, 2 cases in South Carolina, 17 cases in Georgia, 19 cases in Alabama, 1 case in Louisiana, and 6 cases in Texas.
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa, and for 1931 are exclusive of Tulsa only.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
July, 1932										
Puerto Rico		51	1,200	2,290	139	2	0		0	21
August, 1932										
Massachusetts	2	121	5		254	1	10	317	0	29
Mississippi	4	133	610	6,711	15	505	5	42	6	136
September, 1932										
Alabama	5	285	19	445	3	31	7	191	2	95
Arizona		5	14	1	5		2	22	0	17
Connecticut	1	25	7	1	24		5	73	0	12
District of Columbia	1	8	1		6	1	8	24	0	8
Iowa	2	31			8	1	18	84	11	69
Michigan	6	64	3	16	170		32	298	1	100
Nebraska		56	13		23		8	69	0	4
North Dakota		4	10		14		4	12	1	27
Vermont		3			8		1	17	0	0

July, 1932

Puerto Rico:	Cases
Chicken pox	27
Colibacillosis	3
Dengue	2
Dysentery	34
Erysipelas	5
Filariasis	1
Leprosy	1
Puerto Rico—Continued.	
Mumps	9
Ophthalmia neonatorum	4
Puerperal septicemia	11
Tetanus	1
Tetanus, infantile	22
Trachoma	2
Whooping cough	129
Yaws	5

August, 1932

	Cases
Chicken pox:	
Massachusetts	123
Mississippi	166
Dengue:	
Mississippi	4
Dysentery:	
Mississippi (amebic)	46
German measles:	
Massachusetts	26

	Cases
Lead poisoning:	
Massachusetts	1
Lethargic encephalitis:	
Massachusetts	3
Mumps:	
Massachusetts	176
Mississippi	56
Ophthalmia neonatorum:	
Massachusetts	160
Mississippi	6
Paratyphoid fever:	
Massachusetts	5
Puerperal septicemia:	
Mississippi	23
Septic sore throat:	
Massachusetts	7
Tetanus:	
Massachusetts	1
Trachoma:	
Massachusetts	4
Mississippi	2
Trichinosis.	
Massachusetts	8
Undulant fever:	
Massachusetts	2
Mississippi	2
Whooping cough:	
Massachusetts	454
Mississippi	395

September, 1932

	Cases
Anthrax:	
Connecticut	1
Chicken pox	
Alabama	8
Arizona	3
Connecticut	16
District of Columbia	5
Iowa	17
Michigan	109
Chicken pox—Continued.	
Nebraska	15
North Dakota	10
Vermont	18
Conjunctivitis, infectious:	
Connecticut	1
Dysentery:	
Arizona	2
Connecticut (amebic)	1
Connecticut (bacillary)	2
Michigan	1
North Dakota (bacillary)	4
German measles	
Arizona	1
Connecticut	4
Iowa	1
Impetigo contagiosa:	
Iowa	8
Lead poisoning	
Connecticut	4
Lethargic encephalitis	
Alabama	2
Iowa	2
Michigan	8
Mumps	
Alabama	27
Arizona	25
Connecticut	41
Iowa	11
Michigan	108
Nebraska	19
North Dakota	3
Vermont	68
Ophthalmia neonatorum:	
North Dakota	3
Paratyphoid fever.	
Arizona	3
Connecticut	1
Iowa	2
Rabies in animals:	
Connecticut	2
Rocky Mountain spotted fever:	
Arizona	1
District of Columbia	1
Septic sore throat:	
Iowa	2
Michigan	30
Tetanus.	
Connecticut	2
Iowa	1
Trachoma:	
Arizona	31
North Dakota	1
Tularaemia	
Arizona	1
Iowa	1
Typhus fever:	
Alabama	51
Undulant fever:	
Alabama	2
Arizona	5
Iowa	13
Michigan	3
Vincent's angina:	
Iowa	3
Vincent's infection:	
North Dakota	22
Whooping cough.	
Alabama	36
Arizona	5
Connecticut	173
District of Columbia	32
Iowa	28
Michigan	868
Nebraska	69
North Dakota	47
Vermont	22

WEEKLY REPORTS FROM CITIES

City reports for week ended October 1, 1932

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded, and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible but no year earlier than 1923 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	2	0	2		0	1	0	1
New Hampshire:								
Concord	0	0	0		0	0	0	0
Nashua	1	0	0		0	0	0	0
Vermont:								
Barre	1	0	0		0	0	0	0
Burlington	0	0	0		0	0	0	0
Massachusetts								
Boston	7	15	3	1	0	2	13	11
Fall River	0	2	1		0	0	0	0
Springfield	2	2	1		0	0	0	0
Worcester	1	4	1		0	1	2	1

City reports for week ended October 1, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND—con.								
Rhode Island:								
Pawtucket	0	1	0		0	0	0	0
Providence	2	3	1		0	0	1	2
Connecticut:								
Bridgeport	1	2	1		0	2	0	0
Hartford		1						
New Haven	0	0	0		0	0	3	2
MIDDLE ATLANTIC								
New York:								
Buffalo	3	7	13		0	1	0	6
New York	20	78	24	13	1	23	30	80
Rochester	1	2	0	1	0	0	1	6
Syracuse	2	1	0		0	0	0	3
New Jersey:								
Camden	0	3	1		0	0	0	0
Newark	5	9	1	1	0	2	11	3
Trenton	0	1	0		0	1	0	2
Pennsylvania:								
Philadelphia	1	21	5	33	2	1	5	10
Pittsburgh	3	11	7		0	0	1	15
Reading	0	0	2		0	8	0	3
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	1	7	8		0	0	1	4
Cleveland	9	18	6	6	0	3	1	7
Columbus	2	4	6	1	1	12	0	0
Toledo	3	4	1		0	2	0	4
Indiana:								
Fort Wayne	1	1	3		0	0	0	0
Indianapolis	2	6	0		1	0	12	10
South Bend	0	1	0		0	1	0	0
Terre Haute	0	0	0		0	0	0	0
Illinois:								
Chicago	25	56	20	3	1	11	1	21
Springfield	5	0	1	1	0	0	0	0
Michigan:								
Detroit	15	33	8		0	2	6	8
Flint	1	2	1	1	0	1	1	1
Grand Rapids	0	1	0		0	0	4	1
Wisconsin:								
Kenosha	0	0	0		0	1	1	0
Madison	0	1	0			0	0	
Milwaukee		4						
Racine	0	0	0		0	0	0	0
Superior	0	0	0		0	0	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth	0	0	0		0	0	1	3
Minneapolis	7	16	3		0	5	7	4
St. Paul	0	4	1		0	0	1	3
Iowa:								
Des Moines	0	0	1			0	0	
Sioux City	1	1	2			0	0	
Waterloo	1	0	0			0	0	
Missouri:								
Kansas City	2	3	3		0	1	3	7
St. Joseph	0	0	7		0	0	0	3
St. Louis	3	22	8			1	2	3
North Dakota:								
Fargo	4	1	0		0	0	0	0
Grand Forks	0	0	0			1	0	
Nebraska:								
Omaha	2	7	15		0	0	0	2
Kansas:								
Topeka	4	1	0		1	0	4	1
Wichita	0	1	1		0	0	0	5

City reports for week ended October 1, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
SOUTH ATLANTIC								
Delaware:								
Wilmington	0	1	0		0	0	0	1
Maryland:								
Baltimore	3	12	2		0	1	11	2
Cumberland	0	0	0		0	0	0	2
Frederick	0	0	0		0	0	0	0
District of Columbia:								
Washington	1	10	3		0	2	0	4
Virginia:								
Lynchburg	1	3	2		0	0	0	0
Norfolk	0	2	2		0	1	0	2
Richmond	0	15	5		0	0	0	2
Roanoke	0	3	2		0	0	0	1
West Virginia:								
Charleston	0	1	1		0	1	0	1
Huntington	0		2		0	0	0	0
Wheeling	6	0	0		0	5	0	1
North Carolina:								
Raleigh	0	3	0		0	0	0	0
Wilmington	0	1	1		0	0	0	2
Winston-Salem	1	4	1	1	0	0	0	0
South Carolina:								
Charleston	0	1	0	7	0	0	0	0
Columbia	0	1	2		0	0	0	1
Greenville	0	2	0		0	0	0	0
Georgia:								
Atlanta	0	5	6	6	0	1	0	3
Brunswick	0	0	0		0	0	0	0
Savannah	1	1	3		0	0	0	2
Florida:								
Miami	0	1	0		0	0	0	1
Tampa	0	1	3		0	0	0	0
EAST SOUTH CENTRAL								
Kentucky:								
Covington		1						
Lexington	0		6		0	0	0	1
Louisville	2		5		0	1	2	4
Tennessee:								
Memphis	1	5	1		0	0	1	5
Nashville	0	1	1		0	0	0	2
Alabama:								
Birmingham	0	5	10	4	1	1	0	5
Mobile	0	1	4		0	0	0	0
Montgomery	0	3	2			0	4	
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith	1	0	1			0	0	
Little Rock	0	0	3		0	0	0	0
Louisiana:								
New Orleans	0	7	8	1	2	1	0	4
Shreveport	0	1	0		0	0	2	1
Oklahoma:								
Muskogee	0		2		0	0	0	0
Texas:								
Dallas	0	8	33		0	0	0	3
Fort Worth	0	3	5		0	0	0	1
Galveston	0	0	0		0	0	0	1
Houston	0	6	6		1	0	0	1
San Antonio	0	2	1		2	0	0	0
MOUNTAIN								
Montana:								
Billings	0	0	0		0	0	0	0
Great Falls	0	0	0		0	0	0	2
Helena	0	0	0		0	0	0	0
Missoula	1	1	0		0	0	0	0
Idaho:								
Boise	0	1	0		0	1	0	0

City reports for week ended October 1, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
MOUNTAIN—con.								
Colorado:								
Denver	1	6	5		2	4	4	5
Pueblo	0	0	0		0	0	1	0
New Mexico:								
Albuquerque	0	0	2		0	1	4	0
Arizona:								
Phoenix	0	1	0		0	0	0	1
Utah:								
Salt Lake City	3	2	0		1	1	3	2
Nevada:								
Reno	0	0	0		0	0	0	0
PACIFIC								
Washington:								
Seattle	7	3	0			1	6	
Spokane	0	2	0			1	0	
Tacoma	0	4	0		0	0	0	0
Oregon:								
Portland	2	4	1		0	3	2	1
Salem	0	0	0	1	0	1	0	0
California:								
Los Angeles	6	18	10	90	0	6	22	5
Sacramento	2	1	0		0	0	3	1
San Francisco	10	7	2		1	3	4	2

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	1	1	0	0	0	0	0	2	0	2	20
New Hampshire:											
Concord	0	0	0	0	0	0	0	0	0	0	7
Nashua	0	0	0	0	0	0	0	0	0	0	
Vermont:											
Barre	0	0	0	0	0	1	0	0	0	0	1
Burlington	0	1	0	0	0	0	0	0	0	0	7
Massachusetts:											
Boston	23	18	0	0	0	3	3	1	0	23	205
Fall River	2	7	0	0	0	0	1	0	0	2	20
Springfield	1	2	0	0	0	1	0	1	1	0	21
Worcester	7	4	0	0	0	1	0	0	0	0	39
Rhode Island:											
Pawtucket	0	0	0	0	0	0	0	0	0	0	24
Providence	3	6	0	0	0	1	1	1	0	2	55
Connecticut:											
Bridgeport	1	3	0	0	0	0	0	0	0	6	14
Hartford	1		0				0				
New Haven	1	1	0	0	0	0	0	0	0	3	35
MIDDLE ATLANTIC											
New York:											
Buffalo	8	19	0	0	0	0	1	1	0	18	114
New York	34	41	0	0	0	90	29	6	0	136	1,156
Rochester	3	7	0	0	0	1	2	1	0	5	73
Syracuse	2	4	0	0	0	0	0	0	0	14	54
New Jersey:											
Camden	1	4	0	0	0	2	1	3	0	0	29
Newark	4	2	0	0	0	5	2	0	0	17	93
Trenton	1	5	0	0	0	1	0	0	0	2	24
Pennsylvania:											
Philadelphia	27	25	0	0	0	21	10	4	3	32	358
Pittsburgh	16	35	0	0	0	5	2	1	0	28	126
Reading	0	0	0	0	0	0	0	0	0	1	20

City reports for week ended October 1, 1932—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	10	13	0	0	0	7	2	28	1	1	110
Cleveland	13	17	0	0	0	13	2	3	0	33	152
Columbus	4	24	0	0	0	6	1	1	0	4	73
Toledo	5	14	0	0	0	2	2	1	0	8	55
Indiana:											
Fort Wayne	1	1	0	0	0	1	1	0	0	0	21
Indianapolis	5	6	0	0	0	4	2	0	0	4	95
South Bend	2	3	0	0	0	1	0	0	0	6	10
Terre Haute	1	1	0	0	0	0	0	0	0	0	22
Illinois:											
Chicago	44	67	0	0	0	34	6	3	0	27	535
Springfield	1	2	0	0	0	0	0	0	0	0	21
Michigan:											
Detroit	34	21	0	0	0	14	4	3	0	68	208
Flint	6	2	0	0	0	1	0	0	0	0	14
Grand Rapids	6	7	0	0	0	0	1	0	0	12	27
Wisconsin:											
Kenosha	0	1	0	0	0	0	0	0	0	4	1
Madison	1	0	0	0			0	0		0	
Milwaukee	8		0				1				
Racine	2	0	0	0	0	1	0	0	0	2	9
Superior	1	0	0	0	0	0	0	0	0	0	11
WEST NORTH CENTRAL											
Minnesota:											
Duluth	4	2	0	0	0	0	0	0	0	1	16
Minneapolis	13	8	0	0	0	0	2	1	1	10	89
St. Paul	10	8	0	0	0	0	1	0	0	15	38
Iowa:											
Des Moines	3	13	0	0			0	0		0	24
Sioux City	2	0	0	0			0	0		1	
Waterloo	2	1	0	0			0	0		0	
Missouri:											
Kansas City	6	17	0	0	0	2	1	2	0	3	85
St. Joseph	1	1	0	0	0	1	0	0	0	0	30
St. Louis	12	8	0	0	0	15	4	4	0	5	194
North Dakota:											
Fargo	2	0	0	0	0	0	0	0	0	0	6
Grand Forks	0	0	0	0			0	0		0	
Nebraska:											
Omaha	2	5	0	0	0	2	0	0	0	0	43
Kansas:											
Topeka	1	0	0	0	0	0	0	0	0	0	13
Wichita	2	1	0	0	0	0	0	0	0	1	27
SOUTH ATLANTIC											
Delaware:											
Wilmington	1	0	0	0	0	2	0	0	1	0	29
Maryland:											
Baltimore	7	19	0	0	0	14	7	4	0	21	171
Cumberland	0	2	0	0	0	0	1	0	0	2	13
Frederick	0	0	0	0	0	0	0	0	0	0	
District of Col.:											
Washington	8	8	0	0	0	10	2	1	0	5	110
Virginia:											
Lynchburg	1	4	0	0	0	0	1	1	0	5	5
Norfolk	1	0	0	0	0	1	0	0	0	2	23
Richmond	6	6	0	0	0	3	1	0	0	0	34
Roanoke	2	3	0	0	0	0	1	0	0	0	10
West Virginia:											
Charleston	2	2	0	0	0	0	1	2	0	0	12
Huntington		2		0	0	0		0	0	0	
Wheeling	1	0	0	0	0	1	0	0	0	0	13
North Carolina:											
Raleigh	0	2	0	0	0	0	0	0	0	5	5
Wilmington	1	0	0	0	0	0	0	0	0	0	11
Winston-Salem	3	1	0	0	0	5	1	0	0	2	13

City reports for week ended October 1, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
SOUTH ATLANTIC—continued											
South Carolina:											
Charleston	1	1	0	0	0	2	1	1	1	0	14
Columbia	1	1	0	0	0	0	0	0	0	0	1
Greenville		0		0	0	0	0	0	0	0	
Georgia:											
Atlanta	6	2	0	0	0	4	2	3	0	1	71
Brunswick	0	0	0	0	0	1	0	0	0	0	2
Savannah	0	1	0	0	0	2	0	0	0	0	30
Florida.											
Miami	0	2	0	0	0	3	1	0	0	0	24
Tampa	0	0	0	0	0	2	0	0	0	0	22
EAST SOUTH CENTRAL											
Kentucky:											
Covington	1		0				0				
Lexington		4		0	0	2		2	0	0	19
Louisville		6		0	0	0		0	0	0	40
Tennessee:											
Memphis	4	4	0	0	0	4	4	2	0	0	72
Nashville	2	2	0	0	0	2	3	1	0	0	43
Alabama:											
Birmingham	6	9	0	0	0	1	3	5	0	0	45
Mobile	1	0	0	0	0	0	0	0	0	0	11
Montgomery	1	0	0	0			1	1		1	
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	3	0	0			0	0		1	
Little Rock	1	2	0	0	0	4	1	0	0	0	4
Louisiana:											
New Orleans	3	0	0	0	0	10	4	0	0	0	125
Shreveport	1	1	0	0	0	3	0	0	0	0	31
Oklahoma:											
Muskogee		1		0	0	0		2	0	0	
Texas:											
Dallas	3	9	0	0	0	2	1	4	3	1	51
Fort Worth	1	2	0	0	0	1	2	1	0	3	28
Galveston	0	0	0	0	0	1	0	0	0	0	13
Houston	1	1	0	0	0	2	1	0	0	0	60
San Antonio	0	0	0	0	0	3	1	0	0	0	42
MOUNTAIN											
Montana:											
Billings	0	2	0	0	0	0	0	0	0	0	5
Great Falls	1	1	0	0	0	0	0	0	0	1	11
Helena	0	0	0	0	0	0	0	1	0	0	5
Missoula	1	0	1	0	0	0	0	0	0	0	5
Idaho:											
Boise	0	0	0	3	0	0	1	0	0	0	4
Colorado.											
Denver	6	16	0	0	0	6	1	0	0	3	66
Pueblo	0	0	0	0	0	0	1	1	0	1	9
New Mexico:											
Albuquerque	0	2	0	0	0	3	2	0	0	0	16
Arizona:											
Phoenix	1	0		0	0	4	0	0	0	0	
Utah:											
Salt Lake City	3	2	0	0	0	1	1	1	0	3	32
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	3
PACIFIC											
Washington:											
Seattle	8	5	0	5			2	0		0	
Spokane	3	1	1	0			1	0		0	
Tacoma	1	4	1	0	0	1	1	0	0	0	22
Oregon:											
Portland	4	4	1	0	0	0	1	0	0	2	48
Salem	0	0	1	0	0	0		0	0	0	
California:											
Los Angeles	13	21	0	10	0	22	2	1	0	48	247
Sacramento	1	1	0	0	0	0	1	0	0	12	18
San Francisco	7	4	0	0	0	5	1	1	0	15	180

City reports for week ended October 1, 1932—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	1	1	0	0	0	0	4	0	0
Rhode Island:									
Providence	1	0	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York	2	0	2	1	0	0	19	6	0
New Jersey:									
Newark	1	0	0	0	0	0	1	2	0
Pennsylvania:									
Philadelphia	0	0	0	0	0	0	2	45	3
Pittsburgh	0	0	0	0	0	0	0	5	0
Reading	0	0	0	0	0	0	0	2	0
EAST NORTH CENTRAL									
Ohio:									
Cleveland	0	0	0	0	0	0	3	3	1
Indiana:									
Fort Wayne	1	1	0	0	0	0	0	1	0
Indianapolis	4	2	0	0	0	0	0	0	0
Illinois:									
Chicago	3	0	0	1	0	0	5	4	0
Michigan:									
Detroit	1	0	1	0	0	0	5	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	1	0	0	0	0	0	1	0	0
Minneapolis	0	0	0	0	0	0	2	1	0
St. Paul	0	0	0	0	0	0	0	1	0
Iowa:									
Des Moines	0	0	0	0	0	0	0	1	0
Missouri:									
Kansas City	1	1	0	0	1	0	1	0	0
St. Louis	2	0	0	0	0	0	0	0	0
Kansas:									
Wichita	0	0	0	0	0	0	0	1	0
SOUTH ATLANTIC [1]									
Maryland:									
Baltimore [1]	0	1	0	1	0	0	1	0	0
District of Columbia:									
Washington	0	0	0	0	1	1	1	2	0
South Carolina:									
Charleston	0	0	0	0	2	0	0	0	0
Georgia: [1]									
Atlanta	0	0	0	0	3	0	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis	0	0	0	0	0	0	1	1	0
Nashville	0	1	0	0	0	0	0	0	0
Alabama:									
Birmingham	1	0	0	0	0	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans	0	0	0	0	1	1	0	0	0
Shreveport	0	0	0	0	0	1	0	0	0
MOUNTAIN									
New Mexico:									
Albuquerque	0	0	0	0	2	1	0	0	0
Utah:									
Salt Lake City	1	1	0	0	0	0	0	0	0
PACIFIC									
California:									
Los Angeles	0	0	0	0	0	0	1	1	0
Sacramento	0	0	0	0	0	0	0	1	1
San Francisco	1	1	1	0	1	1	1	0	0

[1] Typhus fever, 5 cases: 1 case at Baltimore, Md.; 3 cases at Savannah, Ga.; and 1 case at Tampa, Fla.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended September 24, 1932.—The Department of Pensions and National Health reports cases of certain communicable diseases for the week ended September 24, 1932, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meninigitis		1			4				5
Chicken pox			11	26	2	7	1	7	54
Diphtheria	6	1	29	8	6	2			52
Dysentery				3					3
Erysipelas			1		1				2
Influenza	7			1				5	13
Measles	4	1	20	23	3	2	29	3	85
Mumps	8			27				3	38
Paratyphoid fever				3	1		1		5
Pneumonia				3				4	7
Poliomyelitis			76	18	1		2		97
Scarlet fever	2	1	35	18	32	1	4	17	110
Smallpox						6			6
Trachoma				1	26			2	29
Tuberculosis	1		70	21	49	4	1	22	168
Typhoid fever	1	1	30	42	11	4		2	91
Undulant fever				3					3
Whooping cough	4		60	86	25	7	8	11	201

MEXICO

Tampico—Communicable diseases—September, 1932.—During the month of September, 1932, certain communicable diseases were reported in the city of Tampico, Mexico, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria	3		Paratyphoid fever	1	
Enteritis (various)	58	40	Tuberculosis		29
Influenza	23		Typhoid fever	2	3
Malaria	517	11	Whooping cough	41	5
Measles	2				

PANAMA CANAL ZONE

Communicable diseases—August, 1932.—During the month of August, 1932, certain communicable diseases, including imported cases, were reported in the Panama Canal Zone and terminal cities as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Chicken pox	15		Pneumonia		26
Diphtheria	17	1	Tuberculosis		31
Malaria	109	7	Typhoid fever	2	1
Measles	17	1	Whooping cough	2	
Mumps	1				

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of the quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for September 30, 1932, pp 1992 2005 A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued October 28, 1932, and thereafter, at least for the time being, in the issue published on the last Friday of each month)

Cholera

China.—The latest reports indicate that cholera is decreasing in China and Manchuria. In ports cholera cases and deaths were reported as follows: Amoy, week ended September 24, 1932, 17 cases, 5 deaths; Canton, week ended October 1, 8 cases, 3 deaths; Macao, week ended September 24, 1 case, 1 death; Shanghai, week ended September 24, 21 cases, 1 death; Swatow, week ended September 10, 7 cases, 5 deaths; Tsingtao, week ended September 10, 5 cases, 1 death.

In Fengtien Province, Manchuria, 5,914 cases of cholera and 4,085 deaths had been reported to September 5. The reports are incomplete.

The Chinese Eastern Railway reported 1,143 cases of cholera with 645 deaths in its zone up to August 31, 1932, 561 of the cases being in Harbin.

Plague

England—Liverpool—From Vessel.—Under date of September 20, 1932, the medical officer of health of Liverpool, England, stated that, in addition to the plague-infected rats found on the steamship *City of Oxford*, one plague-infected rat had been found in a shed at the Langton Branch Dock. This is the dock where the *City of Oxford* was berthed. (See Public Health Reports September 30, 1932, page 1990.)

Yellow Fever

Brazil.—During the week ended August 6, 1932, two deaths from yellow fever were reported in Ceara State, Brazil. Under date of September 19, 1932, two deaths from yellow fever were reported in the State of Pernambuco, Brazil.

Senegal.—A fatal case of yellow fever was reported at Bakel, Kidira, Senegal, during the week ended October 1, 1932.

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UNITED STATES TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

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SPECIAL ARTICLES

Prevalence of Communicable Diseases in the United States

Mortality in the U. S. Death Registration Area in 1931

UNITED STATES
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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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CONTENTS

PUBLIC HEALTH REPORTS

VOL. 47 OCTOBER 28, 1932 NO. 44

CURRENT PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES[1]

September 11–October 8, 1932

The prevalence of certain important communicable diseases, as indicated by weekly telegraphic reports from State health departments to the United States Public Health Service, is summarized in this report. The underlying statistical data are published weekly in the Public Health Reports, under the section entitled "Prevalence of Disease."

Poliomyelitis.—For the country as a whole the number of cases (984) of poliomyelitis reported for the current 4-week period was approximately the same as was reported for the preceding period. No further increase over the preceding period was reported for the New England and Middle Atlantic States, where the disease first appeared in epidemic-like form and where it has continued to be most prevalent. Only a slight increase was reported from the East North Central States, where the increase had also been a little greater than normal for a few weeks. In the West North Central States the number of cases dropped from 73 for the preceding 4-week period to 54 for the current period. In the South Atlantic area the incidence dropped about 25 per cent during the current period, but in the South Central States the number of reported cases rose from 36 for the period ended September 10 to 52 for the period ended October 8. In the Mountain and Pacific area the incidence remained practically the same as that for the preceding four weeks, when only a normal seasonal rise was reported.

For this same period in preceding years the number of cases reported was as follows: 4,122 in 1931, 2,236 in 1930, 566 in 1929, as compared with 984 in the present period. A comparison of geographic areas shows that, with the exception of the New England and Middle Atlantic areas, the situation in all sections of the country compares very favorably with that for the corresponding period of several years

[1] From the Office of Statistical Investigations, U. S. Public Health Service. The numbers of States included for the various diseases are as follows: Typhoid fever, 47; poliomyelitis, 48, meningococcus meningitis, 48; smallpox, 48; measles, 45; diphtheria, 47; scarlet fever, 47; influenza, 39 States and New York City. The District of Columbia is counted as a State in these reports.

prior to the years 1931 and 1930. Epidemics appeared in each of those years.

Scarlet fever.—The incidence of scarlet fever increased more than 50 per cent during the current period over the preceding 4-week period. The rise was somewhat sharper than occurred at this time in recent years. For the four weeks ended October 8, the 8,293 reported cases represented an increase of 29 per cent over the corresponding figure for last year. For the corresponding period in 1930 and 1929 the number of cases totaled 5,220 and 6,198, respectively. A comparison of geographic areas shows that the situation in practically all areas was similar to that described for the whole reporting area.

Smallpox.—The incidence of smallpox continued to decline during the four weeks ended October 8. Compared with previous years, the incidence (130 cases) was only 39 per cent of that of last year and 23 per cent of that of 1930. For the same period in 1929 the number of cases totaled 856. All geographic areas showed very appreciable decreases from last year's figure; in fact the incidence in each area was the lowest in recent years.

Typhoid fever.—A gradual decrease in the number of cases of typhoid fever continued. For the four weeks ended October 8 there were 3,553 cases reported—approximately 1,000 less than the number reported during the preceding four weeks. For the first time since early in the year the incidence during a 4-week period fell below that of the corresponding period of last year. For this four weeks in 1931, 1930, and 1929 the number of cases totaled 4,167, 3,812, and 3,110, respectively, as compared with 3,553 for the current period. The New England and Middle Atlantic States and the West North Central States reported slight excesses in the current incidence over last year. Decreases in the other areas ranged from 4 per cent in the Mountain and Pacific areas to 36 per cent in the South Central States.

Meningococcus meningitis.—The reported incidence of meningococcus meningitis continued to be the lowest in recent years. For the current period the number of cases totaled 179, as against 244, 282, and 392 for the corresponding weeks in the years 1931, 1930, and 1929, respectively. In each geographic region, except the South Central, the incidence was the lowest in four years. In the South Central group the incidence (25 cases) closely approximated that in each of the three preceding years.

Influenza.—The number of cases of influenza (2,707) reported for the four weeks ended October 8 represented an increase of about 40 per cent over the preceding 4-week period. In relation to other years the incidence was about 60 per cent in excess of that for the corresponding period last year and more than 50 per cent above the incidence in 1930. For the same period in 1929 there were reported 1,947 cases. The disease appeared to be more prevalent in the South

Atlantic, South Central, and Mountain and Pacific regions. The greatest excesses over the preceding 4-week period, as well as the greatest excesses over the corresponding period of other years, occurred in those regions. Other regions reported only a normal seasonal increase.

Diphtheria.—Reports indicated a normal seasonal increase of diphtheria during the current period. Compared with preceding years the rate of increase was very favorable, slightly below that of 1931 and 1929, but a little higher than in 1930. For the four weeks ended October 8 there were reported 5,695 cases. Each geographic area reported an increase over the preceding 4-week period, but only one, the East North Central, showed any appreciable excess over the corresponding period of last year.

Measles.—Very little change from the preceding 4-week period occurred in the incidence of measles. The number of cases (2,360) was 15 per cent in excess of the number reported for the corresponding period in each of the years 1931 and 1930, but it closely approximated the figure for 1929. Of the various geographic areas, the New England, Middle Atlantic, and South Central areas showed a decrease, while the greatest increases were reported from the South Atlantic and West North Central areas. In the former group the number of cases (203) reported for the current period was 1.9 times the number reported for the same period last year, and in the latter group the number of cases (296) was 2.1 times last year's figure.

Mortality, all causes.—The mortality from all causes in large cities, as reported by the Bureau of the Census for the current period, was approximately the same as was recorded for the preceding 4-week period. The rate was 9.5 per 1,000 population (annual basis). The rates for the corresponding periods in 1931, 1930, and 1929 were 10.2, 10.4, and 10.5, respectively.

MORTALITY IN THE UNITED STATES DEATH REGISTRATION AREA, 1931

The Department of Commerce announces that in 1931 in the death registration area of continental United States (exclusive of the State of Utah) there were 1,318,111 deaths, representing a mortality rate of 11.1 per 1,000 estimated population. This is the lowest rate since the Bureau of the Census began the annual collection of mortality statistics in 1900. The death registration area in 1931 embraced all States except Texas (but included 8 cities in Texas), and it is estimated that it included 96.3 per cent of the total population of the United States. The figures for the State of Utah are not included, owing to the failure of that State to furnish the bureau with any certificates of death for the year 1931. However, even if the number of deaths which occurred in that State were included, it would

not change the death rate for the year 1931, and so the rates for that year may be considered as comparable with those of the three prior years shown in the report.

In the registration area as a whole and in the majority of the individual States the death rate was higher for the urban area than for the rural. The exceptions to this statement were California, Illinois, Indiana, Massachusetts, Michigan, New Hampshire, New Jersey, and New York, where the rates for rural areas were higher than those for urban areas, and Wisconsin, where the urban and rural rates were the same.

In the general decrease in the death rate, a rate has been reached in some States that may be considered remarkable. In 11 States the number of certificates filed indicates a death rate of 10 or less. In fact, four States, North Dakota, South Dakota, Oklahoma, and Wyoming, have rates of less than 9 per 1,000 estimated population.

Exceptionally high mortality rates may indicate that the area is a hospital zone to which many nonresidents from the surrounding region are brought for treatment. In the case of very low rates the reverse may be true, namely, that the area is entirely residential in character, without hospital facilities, often situated near a large city in which the residents are treated for illness. No attempt has been made to allocate the certificates to the places of residence of the decedent.

Provisional summary of deaths and death rates for 1931, by States, with comparable figures for 1928, 1929, and 1930

	Number				Rate per 1,000 estimated population			
	1931	1930	1929	1928	1931	1930	1929	1928
Registration area	[1] 1,318,111	1,343,356	1,386,363	1,378,675	11.1	11.3	11.9	12.1
Urban	703,691	711,810	703,610	704,337	11.9	12.3	13.1	13.3
Rural	614,420	631,546	682,753	674,338	10.2	10.4	10.9	11.0
Alabama	28,431	30,422	32,439	31,847	10.7	11.5	12.4	12.3
Arizona	6,074	6,679	6,793	6,441	13.7	15.2	15.9	15.4
Arkansas	17,847	18,950	19,479	19,998	9.6	10.2	10.5	10.9
California	67,410	66,249	65,415	66,106	11.5	11.6	11.9	12.5
Colorado	12,470	13,207	12,874	14,077	12.0	12.7	12.5	13.8
Connecticut	17,246	17,287	18,282	17,938	10.6	10.7	11.5	11.4
Delaware	3,301	3,256	3,132	3,196	13.8	13.6	13.2	13.6
District of Columbia	7,743	7,387	7,428	7,239	15.8	15.1	15.4	15.1
Florida	18,102	18,229	18,194	18,943	12.0	12.3	12.7	13.7
Georgia	32,992	35,183	35,344	36,011	11.3	12.1	12.2	12.4
Idaho	4,000	4,171	4,075	4,177	9.0	9.4	9.2	9.4
Illinois	85,788	83,591	87,788	90,195	11.1	10.9	11.6	12.1
Indiana	38,699	39,196	40,977	40,490	11.9	12.1	12.7	12.7
Iowa	25,681	26,228	25,681	25,315	10.4	10.6	10.4	10.3
Kansas	18,618	19,505	19,392	20,946	9.9	10.4	10.4	11.2
Kentucky	28,905	29,562	31,109	30,890	11.0	11.3	12.0	11.8
Louisiana	23,535	24,707	24,723	24,987	11.1	11.7	11.9	12.2
Maine	10,490	11,082	11,353	11,005	13.1	13.9	14.8	13.9
Maryland	21,763	21,567	21,873	21,714	13.2	13.2	13.5	13.6
Massachusetts	48,577	49,333	51,916	51,034	11.3	11.6	12.3	12.2
Michigan	49,105	51,620	56,118	54,794	10.0	10.6	11.8	11.8
Minnesota	25,450	25,702	25,692	25,977	9.9	10.0	10.1	10.3
Mississippi	22,009	24,099	25,830	25,886	10.9	12.0	13.0	13.1
Missouri	44,120	43,099	44,281	45,268	12.1	11.9	12.3	12.6
Montana	5,280	5,440	5,742	5,780	9.8	10.1	10.7	10.7
Nebraska	12,908	13,292	13,377	13,660	9.8	9.6	9.8	10.6

[1] Exclusive of Utah, but including 8 cities in Texas.

Provisional summary of deaths and death rates for 1931, by States, with comparable figures for 1928, 1929, and 1930—Continued

State	Number				Rate per 1,000 estimated population			
	1931	1930	1929	1928	1931	1930	1929	1928
Nevada	1,346	1,160	1,199	([2])	14.6	12.7	13.8	([2])
New Hampshire	5,923	6,322	6,542	6,442	12 7	13.6	14.1	14 0
New Jersey	44,475	43,597	46,142	44,962	10 8	10.7	11.6	11.6
New Mexico	6,156	6,596	6,428	([2])	14.4	15 5	15.4	([2])
New York	149,107	147,453	153,985	151,640	11 7	11 7	12.4	12 4
North Carolina	33,116	35,782	36,919	36,160	10 3	11.2	11.8	11.8
North Dakota	5,128	5,371	5,421	5,513	7.5	7.9	8.0	8.2
Ohio	75,557	76,226	81,332	80,198	11.3	11 4	12 4	12 3
Oklahoma	18,802	19,646	21,398	20,953	7 8	8.2	9.0	9 0
Oregon	10,242	10,543	10,668	10,489	10.6	11.0	11 3	11.3
Pennsylvania	111,936	111,606	117,365	119,607	11.5	11.6	12.3	12.6
Rhode Island	7,973	8,006	8,916	8,394	11.5	11.6	13.1	12.5
South Carolina	21,087	22,433	22,053	24,427	12.1	12 9	13.3	14.1
South Dakota	5,868	5,873	([2])	([2])	8.4	8 5	([2])	([2])
Tennessee	28,618	29,987	31,595	31,404	10 8	11 4	12.2	12.2
Texas [2]								
Utah	([3])	5,064	5,062	5,109	([3])	9.9	10.1	10 3
Vermont	4,493	4,687	5,295	4,888	12 5	13.0	14.7	13.6
Virginia	30,029	30,315	31,262	30,211	12.4	12.5	13.0	12.6
Washington	16,524	16,678	16,413	16,723	10.5	10.6	10.6	10.9
West Virginia	17,620	18,220	18,128	17,507	10.1	10.5	10.6	10 4
Wisconsin	30,217	30,553	31,287	31,788	10.2	10 4	10.7	11.0
Wyoming	2,035	2,079	2,010	2,155	8 9	9.2	9.0	9.8

[2] State not in registration area.
[3] Transcripts not received.

DEATHS DURING WEEK ENDED OCTOBER 8, 1932

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Oct 8, 1932	Corresponding week, 1931
Data from 85 large cities of the United States.		
Total deaths	6,863	7,004
Deaths per 1,000 population, annual basis	9 8	10 3
Deaths under 1 year of age	573	669
Deaths under 1 year of age per 1,000 estimated live births [1]	48	51
Deaths per 1,000 population, annual basis, first 40 weeks of year	11.1	12 0
Data from industrial insurance companies		
Policies in force	70,292,213	74,633,545
Number of death claims	11,013	11,479
Death claims per 1,000 policies, in force, annual rate	8.2	8.0
Death claims per 1,000 policies, first 40 weeks of year, annual rate	9.6	9.8

[1] 1932, 81 cities; 1931, 77 cities.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended October 15, 1932, and October 17, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended October 15, 1932, and October 17, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Oct. 15, 1932	Week ended Oct 17, 1931	Week ended Oct. 15, 1932	Week ended Oct. 17, 1931	Week ended Oct. 15, 1932	Week ended Oct. 17, 1931	Week ended Oct. 15, 1932	Week ended Oct. 17, 1931
New England States:								
Maine	3	2		5		46	0	0
New Hampshire		2			3	1	0	0
Vermont	2				1	21	0	0
Massachusetts	19	29	1	7	32	50	1	1
Rhode Island	3	2				26	0	0
Connecticut [1]	2	5	2	2	4	1	0	1
Middle Atlantic States:								
New York	31	72	[2] 12	[2] 11	85	58	2	3
New Jersey	22	31	12	4	60	14	2	2
Pennsylvania	85	79			97	109	4	4
East North Central States:								
Ohio	101	140	66	15	31	62	1	1
Indiana	78	37	10	1	2	5	2	4
Illinois	113	100	9	6	15	17	3	7
Michigan	21	21	23		48	27	0	1
Wisconsin	15	18	19	12	54	11	0	0
West North Central States:								
Minnesota	16	22			60	8	1	2
Iowa	25	13			1	2	1	0
Missouri	91	86	5	4	5	2	1	2
North Dakota		2			16		0	0
South Dakota	3	5		1			0	0
Nebraska	30	9	6	1	2	1	1	0
Kansas	46	33	4		5	11	3	1
South Atlantic States:								
Delaware	4	8			2	1	1	0
Maryland [3]	27	50	3	7	2	5	0	1
District of Columbia	6	11	1			1	0	0
Virginia	75				11		0	1
West Virginia	42	103	16	11	4	29	0	2
North Carolina	94	207	9		11	8	1	0
South Carolina	33	62	317	217	17	6	0	0
Georgia [1]	76	35	52	8	24	1	1	0
Florida	28	25	1		1	15	0	0
East South Central States:								
Kentucky	88	187		45	48		0	2
Tennessee	110	185	41	10		1	1	4
Alabama [1]	89	111	4	1			1	1
Mississippi	49	156					0	1

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended October 15, 1932, and October 17, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Oct. 15, 1932	Week ended Oct. 17, 1931	Week ended Oct. 15, 1932	Week ended Oct. 17, 1931	Week ended Oct. 15, 1932	Week ended Oct. 17, 1931	Week ended Oct. 15, 1932	Week ended Oct. 17, 1931
West South Central States:								
Arkansas	46	61	32		1	7	0	0
Louisiana [1]	43	33	11	3	4	7	0	3
Oklahoma [4]	120	169	27	13	1	3	3	0
Texas [1]	147	50	36	6	3	4	0	1
Mountain States:								
Montana			1		64	23	1	1
Idaho	8						0	0
Wyoming			1		1		0	0
Colorado	9	6			7	4	0	0
New Mexico	3	28	6	1	1	1	0	0
Arizona	3	3		7			0	0
Utah [3]	4	1	1	8	2	1	1	0
Pacific States:								
Washington	9	15	57		3	11	0	3
Oregon	1	5	37	33	12	10	0	1
California	49	65	123	67	12	72	3	6
	1,869	2,284	945	506	761	682	35	56

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Oct. 15, 1932	Week ended Oct. 17, 1931	Week ended Oct. 15, 1932	Week ended Oct. 17, 1931	Week ended Oct. 15, 1932	Week ended Oct. 17, 1931	Week ended Oct. 15, 1932	Week ended Oct. 17, 1931
New England States:								
Maine	5	12	11	8	0	0	3	11
New Hampshire	0	2	20	2	0	0	1	0
Vermont	1	6	6	4	0	0	0	0
Massachusetts	0	43	132	123	0	0	3	4
Rhode Island	0	2	9	17	0	0	1	0
Connecticut [1]	1	26	27	14	0	0	2	2
Middle Atlantic States:								
New York	13	160	196	168	0	0	40	46
New Jersey	12	33	62	72	0	0	10	12
Pennsylvania	48	28	209	199	0	0	34	61
East North Central States:								
Ohio	2	8	329	348	8	0	36	47
Indiana	1	4	72	37	1	3	20	22
Illinois	5	35	215	174	1	1	42	46
Michigan	4	46	189	116	0	1	19	21
Wisconsin	1	53	41	49	0	2	4	3
West North Central States:								
Minnesota	4	60	37	46	0	0	5	8
Iowa	5	7	42	21	1	26	12	2
Missouri	0	1	108	64	0	0	13	22
North Dakota	0	1	4	4	1	0	3	1
South Dakota	0	2	8	7	0	2	2	1
Nebraska	3	2	40	21	2	1	0	0
Kansas	0	0	72	45	1	3	3	3
South Atlantic States:								
Delaware	1	1	3	3	0	0	3	3
Maryland [1]	2	2	63	63	0	0	27	53
District of Columbia	2	0	13	11	0	0	0	0
Virginia	3	3	69		0		33	
West Virginia	0	5	53	52	0	1	35	58
North Carolina	1	1	103	126	0	2	8	22
South Carolina	1	1	13	19	0	0	21	28
Georgia [1]	0	0	15	25	0	0	24	37
Florida	0	1	10	2	0	0	6	5
East South Central States:								
Kentucky	2	1	82	68	1	0	38	35
Tennessee	1	2	69	88	0	1	20	57
Alabama [1]	2	0	59	56	0	7	21	15
Mississippi	2	2	41	53	0	3	10	22

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended October 15, 1932, and October 17, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Oct. 15, 1932	Week ended Oct. 17, 1931	Week ended Oct. 15, 1932	Week ended Oct. 17, 1931	Week ended Oct. 15, 1932	Week ended Oct. 17, 1931	Week ended Oct. 15, 1932	Week ended Oct. 17, 1931
West South Central States								
Arkansas	0	0	30	14	0	6	17	22
Louisiana [1]	0	1	12	16	0	0	24	30
Oklahoma [4]	0	0	44	52	1	4		51
Texas [1]	8	1	49	46	4	4	29	22
Mountain States:							16	
Montana	0	0	7	17	4	0	7	3
Idaho	0	1	0	3	0	0	5	0
Wyoming	0	0	8	3	0	0	1	0
Colorado	0	0	21	8	0	0	5	9
New Mexico	0	0	15	8	0	0	10	11
Arizona	2	1	12	6	0	0	0	5
Utah [3]	0	0	6	4	0	0	0	2
Pacific States:								
Washington	14	4	24	7	1	4	4	3
Oregon	1	0	24	4	1	3	2	2
California	3	7	90	98	2	3	6	6
	150	565	2,764	2,395	29	77	625	812

[1] Typhus fever, week ended Oct. 15, 1932, 26 cases: 1 case in Connecticut, 7 cases in Georgia, 13 Alabama, 1 case in Louisiana, and 4 cases in Texas.
[2] New York City only
[3] Week ended Friday.
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
July, 1932										
Hawaii Territory	-------	12	4,996	-------	1	-------	0	-------	0	7
September, 1932										
Arkansas	1	123	42	417	6	161	0	44	2	106
Florida	-------	65	10	25	8	7	0	15	0	17
Georgia	3	202	102	430	15	45	0	104	2	234
Indiana	7	177	56	1	26	-------	1	166	2	90
Maine	1	5	12	-------	10	-------	7	22	0	29
New Jersey	4	74	16	2	149	-------	155	190	0	54
New Mexico	2	37	3	14	6	4	4	34	0	41
Ohio	6	202	23	3	115	-------	10	761	25	305
Pennsylvania	25	232	-------	1	188	-------	458	582	0	339
Tennessee	7	300	59	344	8	16	8	174	1	257
Wyoming	2	1	-------	-------	10	-------	3	20	2	8

Summary of monthly reports from States—Continued

July, 1932	Cases
Hawaii Territory:	
Chicken pox	19
Dysentery bacillary	1
Hookworm disease	25
Impetigo contagiosa	3
Leprosy	4
Mumps	10
Tetanus	3
Whooping cough	8
September, 1932	
Chicken pox:	
Arkansas	3
Florida	6
Georgia	18
Indiana	28
Maine	16
New Jersey	54
New Mexico	6
Ohio	135
Pennsylvania	231
Tennessee	2
Wyoming	11
Conjunctivitis:	
Georgia	21
New Mexico	1
Dengue:	
Florida	1
Georgia	3
Diarrhea and enteritis:	
Ohio	63
Dysentery:	
Florida	1
Georgia	15
New Jersey	1
New Mexico	9
Ohio	3
Pennsylvania	13
Tennessee	25
Food poisoning:	
Ohio	1
German measles:	
Maine	13
New Jersey	18
Ohio	7
Pennsylvania	14
Tennessee	5

	Cases
Hookworm disease:	
Arkansas	13
Georgia	181
Impetigo contagiosa:	
Tennessee	9
Lead poisoning:	
New Jersey	1
Ohio	5
Lethargic encephalitis:	
Georgia	1
New Jersey	2
Ohio	1
Pennsylvania	6
Mumps:	
Arkansas	25
Florida	9
Georgia	13
Indiana	28
Maine	9
New Jersey	105
New Mexico	7
Ohio	43
Pennsylvania	287
Tennessee	8
Wyoming	3
Ophthalmia neonatorum:	
Arkansas	2
New Jersey	3
Ohio	75
Pennsylvania	4
Tennessee	2
Paratyphoid fever:	
Florida	1
Georgia	2
Maine	1
New Jersey	1
Ohio	4
Tennessee	5
Puerperal septicemia:	
New Mexico	1
Ohio	2
Pennsylvania	22
Tennessee	1
Rabies in animals:	
New Jersey	14
Rabies in man:	
New Jersey	1
Rocky Mountain spotted fever:	
Tennessee	1
Wyoming	1

	Cases
Septic sore throat:	
Georgia	45
Ohio	79
Tennessee	6
Wyoming	2
Tetanus:	
Georgia	2
New Jersey	3
Ohio	5
Pennsylvania	1
Tennessee	2
Trachoma:	
Georgia	88
New Jersey	1
Ohio	1
Pennsylvania	1
Tennessee	23
Trichinosis:	
Ohio	2
Pennsylvania	2
Tularæmia:	
Ohio	1
Wyoming	5
Typhus fever:	
Florida	4
Georgia	48
Undulant fever:	
Arkansas	1
Georgia	4
Maine	1
New Jersey	2
New Mexico	1
Ohio	6
Pennsylvania	2
Tennessee	1
Vincent's angina:	
Maine	2
New Mexico	1
Tennessee	1
Whooping cough:	
Arkansas	31
Florida	12
Georgia	28
Indiana	81
Maine	33
New Jersey	334
New Mexico	29
Ohio	477
Pennsylvania	1,218
Tennessee	63
Wyoming	9

WEEKLY REPORTS FROM CITIES

City reports for week ended October 8, 1932

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded, and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible but no year earlier than 1923 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	4	0	0		0	0	1	1
New Hampshire:								
Concord	0	0	0		0	0	0	0
Manchester	0	0	0		0	0	0	1
Vermont:								
Barre	0	0	0		0	0	0	0
Massachusetts:								
Boston	7	16	4		0	5	13	8
Fall River	0	3	0	1	1	0	0	0
Springfield	3	3	0		0	0	0	0
Worcester	0	4	3		0	4	1	2
Rhode Island:								
Pawtucket	0	0	0		0	0	0	1
Providence	4	4	1		0	0	1	2
Connecticut:								
Bridgeport	1	2	0		0	0	0	1
Hartford	2	2	0	1	0	0	1	1
New Haven	4	1	0		0	0	2	0
MIDDLE ATLANTIC								
New York:								
Buffalo	5	9	8		0	3	1	6
New York	19	88	37	9	9	29	45	85
Rochester	3	1	0		0	1	0	1
Syracuse	2	1	0		0	0	0	2
New Jersey:								
Camden	0	4	10		0	0	0	2
Newark	3	11	1	7	0	5	5	8
Trenton	0	1	1		0	0	0	0
Pennsylvania:								
Philadelphia	4	26	4	3	0	2	1	18
Pittsburgh	3	11	2	1	1	1	6	17
Reading	0	1	0		0	9	5	2
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	1	7	10		0	1	0	6
Cleveland	14	21	7	30	0	2	6	7
Columbus	0	4	3	1	0	12	0	3
Toledo	2	5	0		0	1	2	2
Indiana:								
Fort Wayne	3	2	4		0	0	0	0
Indianapolis	3	8	1		0	0	7	6
South Bend	0	0	0		0	0	0	0
Terre Haute	0	1	0		0	0	0	0
Illinois:								
Chicago	32	61	25	5	0	15	5	26
Springfield	0	1	1	3	0	0	1	0
Michigan:								
Detroit	36	38	7		1	10	5	6
Flint	0	2	0	10	0	1	0	3
Grand Rapids	3	0	0		1	1	1	1

City reports for week ended October 8, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
EAST NORTH CENTRAL—continued								
Wisconsin:								
Kenosha	4	0	0		0	1	0	0
Madison	4	1	1			2	0	
Milwaukee	17	4	6	1	1	3	3	12
Racine	1	1	0	0	0	0	0	0
Superior	1	0	0		0	0	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth	0	1	0		0	0	0	1
Minneapolis	11	16	3		0	25	5	3
St. Paul	8	5	0		0	1	1	5
Iowa:								
Des Moines	0	2	10			0	0	
Sioux City	1	2	2			0	0	
Waterloo	3	0	0			0	0	
Missouri:								
Kansas City		4						
St. Joseph	0	1	4		0	0	0	3
St. Louis	6	26	3			1	1	
North Dakota:								
Fargo	1	0	0		0	0	0	1
Grand Forks	0	0	0			4	0	
South Dakota:								
Aberdeen	0	0	0			0	0	
Nebraska:								
Omaha	3	9	10		0	0	3	2
Kansas:								
Topeka	0	1	0		1	0	0	3
Wichita	0	1	3		0	0	2	1
SOUTH ATLANTIC								
Delaware:								
Wilmington	2	0	0		0	0	0	1
Maryland:								
Baltimore	5	14	0	3	0	0	13	15
Cumberland	0	0	0		0	0	0	1
Frederick	0	0	0		0	0	0	0
District of Columbia:								
Washington	1	12	7		0	1	0	9
Virginia:								
Lynchburg	1	2	3		0	2	0	2
Norfolk	0	2	1		0	35	0	0
Richmond	0	17	1		0	0	0	3
Roanoke	1	4	3		0	0	1	0
West Virginia:								
Charleston	1	1	2		0	0	0	0
Huntington	0		3		0	0	0	0
Wheeling	1	0	0		0	2	1	2
North Carolina:								
Raleigh	0	3	1		0	0	0	0
Wilmington	0	1	2		0	0	0	1
Winston-Salem	6	5	1		0	2	0	1
South Carolina:								
Charleston	0	1	0	6	0	0	0	3
Columbia	0	1	1		0	0	0	1
Greenville	0	1	0		0	0	1	0
Georgia:								
Atlanta	1	6	0		0	0	0	3
Brunswick	0	0	0		0	0	0	0
Savannah	0	2	2		0	0	0	1
Florida:								
Miami	0	0	1		0	0	0	1
Tampa	0	1	6		0	0	0	1
EAST SOUTH CENTRAL								
Kentucky:								
Covington		1						
Lexington	0		4		0	1	0	0
Louisville	0		5		0	0	1	10
Tennessee:								
Memphis	1	5	8		0	0	1	5
Nashville	0	4	1		1	0	0	2
Alabama:								
Birmingham	0	5	16	1	0	0	0	1
Mobile	0	1	4		0	0	0	1
Montgomery	0	4	2			0	4	

City reports for week ended October 8, 1932—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith	1	2	0			0	1	
Little Rock	0	1	2		0	0	0	0
Louisiana:								
New Orleans	0	8	11	3	2	0	0	8
Shreveport	0	1	1		0	0	0	0
Oklahoma:								
Muskogee	0		1		0	0	0	0
Oklahoma City	0	3	10	16	2	0	0	4
Tulsa	0	3	0			0	0	
Texas:								
Dallas	0	11	28		0	2	0	2
Fort Worth	0	3	0		0	0	0	1
Galveston	0	0	3		0	0	0	2
Houston	0	7	8		0	0	0	2
San Antonio	0	2	1		1	0	1	2
MOUNTAIN								
Montana:								
Billings	0	0	0		0	0	0	0
Great Falls	0	0	0		0	3	0	0
Helena	16	0	0		0	1	0	0
Missoula	1	0	0		0	0	0	0
Idaho:								
Boise	0	0	0		0	0	0	0
Colorado:								
Denver	3	6	6		0	2	4	9
Pueblo	5	1	0		0	0	0	1
New Mexico:								
Albuquerque	0	0	1	5	0	0	0	0
Arizona:								
Phoenix	0	0	0		0	0	0	0
Utah:								
Salt Lake City	1	2	0		0	2	4	0
Nevada:								
Reno	0	0	1		0	0	0	0
PACIFIC								
Washington:								
Seattle	4	4	0			0	1	
Spokane	1	2	0			1	0	
Tacoma	5	2	0		0	0	0	0
Oregon:								
Portland	0	5	1	1	0	2	1	3
Salem	0	0	0	2	0	2	1	0
California:								
Los Angeles	5	21	17	84	0	3	7	8
Sacramento	12	2	0		0	0	0	2
San Francisco	17	8	3	4	0	3	2	6

City reports for week ended October 8, 1938—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	1	3	0	0	0	1	0	2	0	4	20
New Hampshire:											
Concord	1	0	0	0	0	1	0	0	0	0	12
Manchester	1	0	0	0	0	0	0	0	0	0	4
Vermont:											
Barre	0	0	0	0	0	0	0	0	0	0	3
Massachusetts:											
Boston	26	29	0	0	0	6	3	0	0	22	196
Fall River	2	8	0	0	0	2	0	1	0	3	29
Springfield	2	1	0	0	0	1	0	3	1	0	32
Worcester	7	8	0	0	0	2	0	0	0	2	37
Rhode Island:											
Pawtucket	0	0	0	0	0	0	0	0	0	0	10
Providence	3	14	0	0	0	1	0	3	0	11	58
Connecticut:											
Bridgeport	2	6	0	0	0	1	0	2	0	3	34
Hartford	2	3	0	0	0	0	0	1	0	0	29
New Haven	2	1	0	0	0	1	1	0	0	2	38
MIDDLE ATLANTIC											
New York:											
Buffalo	9	11	0	0	0	8	1	0	0	19	116
New York	40	52	0	0	0	74	26	31	1	97	1,218
Rochester	4	7	1	0	0	2	1	0	0	1	47
Syracuse	3	13	0	0	0	0	0	0	0	7	51
New Jersey:											
Camden	2	1	0	0	0	0	0	1	0	0	28
Newark	5	7	0	0	0	5	1	0	0	15	79
Trenton	1	4	0	0	0	2	0	1	0	4	24
Pennsylvania:											
Philadelphia	33	25	0	0	0	23	9	7	1	21	355
Pittsburgh	19	20	0	0	0	2	2	0	0	9	147
Reading	1	0	0	0	0	1	0	1	0	10	37
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	12	13	0	0	0	3	2	1	0	2	103
Cleveland	15	38	0	0	0	6	1	2	0	21	154
Columbus	6	12	1	0	0	4	1	0	0	0	66
Toledo	7	24	0	0	0	1	1	0	0	7	53
Indiana:											
Fort Wayne	0	2	1	0	0	1	0	2	0	0	15
Indianapolis	7	10	0	0	0	4	2	2	0	2	--------
South Bend	2	0	0	0	0	1	0	0	0	2	11
Terre Haute	1	0	0	0	0	0	0	0	1	0	14
Illinois:											
Chicago	51	78	1	0	0	31	6	4	0	31	543
Springfield	1	3	0	0	0	0	1	1	0	1	13
Michigan:											
Detroit	39	43	1	0	0	10	4	2	0	45	200
Flint	6	2	0	0	0	0	1	0	0	0	16
Grand Rapids	6	3	0	0	0	0	1	0	0	20	37
Wisconsin:											
Kenosha	1	1	0	0	0	0	0	0	0	2	5
Madison	2	0	0	0	--------	--------	0	0	--------	4	--------
Milwaukee	9	8	0	0	0	5	2	2	0	17	113
Racine	2	2	0	0	0	0	0	0	0	3	11
Superior	2	0	0	0	0	0	0	0	0	0	5
WEST NORTH CENTRAL											
Minnesota:											
Duluth	4	0	0	0	0	3	1	0	0	0	24
Minneapolis	14	11	0	0	0	0	0	0	0	8	90
St. Paul	11	8	0	0	0	3	1	0	0	16	76
Iowa:											
Des Moines	8	8	0	1	--------	--------	0	0	--------	0	24
Sioux City	1	0	0	0	--------	--------	0	0	--------	0	--------
Waterloo	0	0	0	0	--------	--------	0	1	--------	2	--------

City reports for week ended October 8, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL—continued											
Missouri:											
Kansas City	8		0				1				
St. Joseph	1	2	0	0	0	0	0	1	0	2	20
St. Louis	13	18	0	0	0	4	5	4	0	1	177
North Dakota:											
Fargo	2	0	0	0	0	0	0	0	0	0	6
Grand Forks	1	0	0	0			0	0		0	
South Dakota:											
Aberdeen	1	0	0	0			0	0		2	
Nebraska:											
Omaha	3	6	0	0	0	1	0	0	0	3	45
Kansas:											
Topeka	1	0	0	0	0	1	0	0	0	0	14
Wichita	2	4	0	0	0	2	1	0	0	0	23
SOUTH ATLANTIC											
Delaware:											
Wilmington	0	3	0	0	0	1	0	0	0	0	16
Maryland:											
Baltimore	9	12	0	0	0	10	6	3	0	12	188
Cumberland	1	2	0	0	0	0	0	4	0	1	6
Frederick	1	1	0	0	0	0	0	1	0	0	3
District of Columbia:											
Washington	10	4	0	0	0	13	2	2	0	6	118
Virginia:											
Lynchburg	0	2	0	0	0	0	1	2	0	0	16
Norfolk	1	0	0	0	0	1	0	0	0	0	23
Richmond	6	3	0	0	0	2	1	0	0	0	45
Roanoke	2	8	0	0	0	1	0	2	2	0	16
West Virginia:											
Charleston	2	4	0	0	0	1	1	0	0	0	10
Huntington		6		0	0	0		0	0	0	
Wheeling	2	3	0	0	0	1	1	0	0	0	18
North Carolina:											
Raleigh	2	1	0	0	0	1	0	0	0	0	10
Wilmington	1	0	0	0	0	0	0	0	0	0	10
Winston-Salem	3	1	0	0	0	1	1	0	0	4	11
South Carolina:											
Charleston	1	0	0	0	0	4	1	1	0	0	26
Columbia	0	0	0	0	0	2	1	0	0	0	18
Greenville		0		0	0	0		0	0	3	
Georgia:											
Atlanta	7	9	0	0	0	7	2	2	1	1	64
Brunswick	0	0	0	0	0	0	0	0	0	0	3
Savannah	0	2	0	0	0	2	1	3	0	0	27
Florida:											
Miami	1	1	0	0	0	2	0	0	0	0	15
Tampa	0	0	0	0	0	1	0	0	0	0	23
EAST SOUTH CENTRAL											
Kentucky:											
Covington	1		0				1				
Lexington		2		0	0	1		0	0	0	12
Louisville		3		0	0	3		2	0	5	80
Tennessee:											
Memphis	4	4	1	0	0	3	4	2	1	0	84
Nashville	2	3	0	0	0	4	2	0	0	1	49
Alabama:											
Birmingham	5	9	1	0	0	5	2	5	1	0	53
Mobile	1	0	0	0	0	0	0	0	0	0	15
Montgomery	1	2	0	0			0	0		1	

City reports for week ended October 8, 1932—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases, reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	0	0	0			0	0		0	
Little Rock	2	0	0	0	0	3	1	4	0	0	4
Louisiana:											
New Orleans	3	3	0	0	0	9	4	1	0	0	118
Shreveport	1	2	0	0	0	3	0	0	0	0	31
Oklahoma:											
Muskogee	0	1		0	0	0		0	0	0	
Oklahoma City	2	6	0	0	0	2	3	3	0	0	42
Tulsa	3	1	0	0			1	1		0	
Texas:											
Dallas	4	7	0	0	0	1	2	0	0	1	51
Fort Worth	1	0	0	0	0	6	0	0	0	0	40
Galveston	0	0	0	0	0	1	0	0	0	0	10
Houston	1	1	0	0	0	3	0	0	1	0	52
San Antonio	1	0	0	0	0	7	1	0	0	0	45
MOUNTAIN											
Montana:											
Billings	0	0	0	0	0	0	0	0	0	0	6
Great Falls	1	0	0	0	0	0	1	0	0	1	12
Helena	0	0	0	0	0	0	0	0	0	0	7
Missoula	0	0	0	0	0	0	0	0	0	0	2
Idaho:											
Boise	0	0	0	3	0	0	0	0	0	0	6
Colorado:											
Denver	7	10	0	0	0	6	2	1	1	7	67
Pueblo	0	0	0	0	0	0	1	0	0	3	9
New Mexico:											
Albuquerque	1	1	0	0	0	0	1	0	0	2	10
Arizona:											
Phoenix	0	0		0	0	3	0	0	0	0	
Utah:											
Salt Lake City	3	1	1	0	0	1	2	1	0	1	27
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	8
PACIFIC											
Washington:											
Seattle	8	8	1	7			2	0		2	
Spokane	3	1	0	0			0	0		3	
Tacoma	2	2	1	0	0	1	0	0	0	0	16
Oregon:											
Portland	5	9	2	1	0	0	1	1	0	1	50
Salem	0	0	0	0	0	0		0	0	0	
California:											
Los Angeles	15	19	0	1	0	14	2	3	0	25	241
Sacramento	2	0	1	0	0	3	1	0	0	1	16
San Francisco	9	5	1	0	0	15	0	0	0	24	137

City reports for week ended October 8, 1932—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND [1]									
Massachusetts:									
Boston	2	0	0	0	0	0	1	2	1
Fall River	0	0	0	0	0	0	0	1	0
MIDDLE ATLANTIC									
New York:									
New York	3	0	0	0	0	0	18	3	0
New Jersey.									
Camden	0	0	0	0	0	0	0	5	2
Trenton	0	0	1	0	0	0	0	0	0
Pennsylvania:									
Philadelphia	2	0	0	0	0	0	1	30	3
Pittsburgh	1	0	0	0	0	0	0	0	0
Reading	0	0	0	0	0	0	0	1	0
EAST NORTH CENTRAL									
Ohio:									
Cleveland	1	0	0	0	0	1	2	0	0
Indiana:									
Indianapolis	10	1	0	0	0	0	0	0	0
South Bend	0	0	0	0	0	0	0	1	0
Illinois:									
Chicago	2	1	1	0	0	0	5	2	0
Michigan.									
Detroit	0	1	1	0	1	0	4	1	0
Wisconsin:									
Milwaukee	0	0	0	0	0	0	0	1	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis	0	0	0	0	0	0	1	1	0
Missouri:									
St. Louis	2	0	0	0	0	0	1	0	0
SOUTH ATLANTIC [1]									
Maryland.									
Baltimore [1]	0	0	1	0	0	0	0	1	0
District of Columbia:									
Washington [1]	0	0	0	0	1	1	1	3	0
Georgia: [1]									
Savannah [1]	0	0	0	0	0	1	0	0	0
Florida.									
Miami	0	0	0	0	0	1	0	0	0
EAST SOUTH CENTRAL [1]									
Tennessee:									
Memphis	0	0	0	0	0	0	0	1	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans	0	0	0	0	1	1	0	5	0
Oklahoma									
Oklahoma City	0	0	0	0	1	0	0	0	0
Texas:									
Dallas	0	0	0	1	1	1	0	0	0
Houston	0	0	0	0	0	0	0	1	0
MOUNTAIN									
Arizona:									
Phoenix	0	0	0	0	0	0	0	1	0
PACIFIC									
California:									
Los Angeles	0	1	0	0	0	0	1	0	0
San Francisco	0	0	0	0	0	0	0	1	0

[1] Typhus fever, 7 cases: 1 case at New Haven, Conn.; 1 case at Baltimore, Md.; 1 case at Washington, D. C.; 1 case at Atlanta, Ga.; 2 cases at Savannah, Ga.; and 1 case at Mobile, Ala.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended October 1, 1932.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases for the week ended October 1, 1932, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis		1		2					3
Chicken pox			11	76	8	2	9	17	123
Diphtheria	2		19	22	8	2			53
Erysipelas			1	3				1	5
Influenza	2							14	16
Measles	24		18	112	9		3	9	175
Mumps				42	1		1	5	49
Paratyphoid fever				8					8
Pneumonia				3				5	8
Poliomyelitis		1	61	13			1		76
Scarlet fever	3	2	76	33	17	4	7	12	154
Trachoma								1	1
Tuberculosis		5	57	74	7			15	158
Typhoid fever	1		40	21	5	1	1		69
Whooping cough			156	56	23	5		13	253

Ontario Province—Communicable diseases—Four weeks ended September 24, 1932.—The Department of Health of the Province of Ontario, Canada, reports certain communicable diseases for the four weeks ended September 24, 1932, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Cerebrospinal meningitis	2		Poliomyelitis	53	1
Chancroid	1		Puerperal septicemia		1
Chicken pox	102		Scarlet fever	78	
Diphtheria	98	4	Septic sore throat	2	
Dysentery	8	7	Smallpox	3	
Erysipelas	7		Syphilis	172	1
German measles	6		Trachoma	2	
Gonorrhea	240		Trench mouth	2	
Influenza	1	2	Tuberculosis	163	57
Lethargic encephalitis	1	2	Tularaemia	4	
Measles	127		Typhoid fever	94	4
Mumps	157		Undulant fever	10	
Paratyphoid fever	19		Whooping cough	380	6
Pneumonia		61			

Quebec Province—Communicable diseases—Six weeks ended October 8, 1932.—During the six weeks ended October 8, 1932, the Bureau

of Health of the Province of Quebec, Canada, reported cases of certain communicable diseases as follows:

Disease	Weeks ended—						
	Sept. 3	Sept. 10	Sept. 17	Sept. 24	Oct. 1	Oct. 8	Total
Cerebrospinal meningitis						3	3
Chicken pox	7	5	7	11	11	8	49
Diphtheria	10	25	16	29	19	30	129
Erysipelas	1	5		1	1	1	9
German measles	15	3	6	4	3	12	43
Measles	9	13	8	16	15	11	72
Ophthalmia neonatorum		1			2		3
Poliomyelitis	30	57	98	76	61	51	373
Puerperal fever	1	1	2		1		5
Scarlet fever	40	16	30	35	76	62	259
Tuberculosis	64	57	48	70	57	52	348
Typhoid fever	27	37	44	30	40	37	215
Whooping cough	49	57	70	60	156	47	439

CUBA

Habana—Communicable diseases—Four weeks ended October 8, 1932.—During the four weeks ended October 8, 1932, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria	7	2	Tuberculosis	24	
Leprosy	1		Typhoid fever [1]	9	4
Malaria [1]	11				

[1] Many of these cases are from the Island of Cuba, outside of Habana.

GREAT BRITAIN

England and Wales—Vital statistics, April–June, 1932.—During the second quarter of the year 1932, 165,456 births and 116,248 deaths were registered in England and Wales. The following statistics are taken from the Quarterly Return of Births, Deaths, and Marriages, issued by the Registrar General of England and Wales. The figures are provisional.

Birth and death rates in England and Wales, April to June, 1932

Annual rates per 1,000 population:	
Live births	16.60
Stillbirths	.72
Deaths, all causes	11.66
Deaths from—	
Typhoid and paratyphoid fevers	.01
Measles	.15
Scarlet fever	.01
Annual rates per 1,000 population—Continued.	
Deaths from—Continued.	
Whooping cough	0.09
Diphtheria	.05
Influenza	.16
Deaths per 1,000 live births	
Diarrhea and enteritis (under 2 years)	5.3
Total deaths under 1 year	58.4

England and Wales—Infectious diseases—Thirteen weeks ended July 2, 1932.—During the 13 weeks ended July 2, 1932, cases of certain infectious diseases were reported in England and Wales as follows:

Disease	Cases	Disease	Cases
Diphtheria	9,403	Puerperal pyrexia	1,415
Ophthalmia neonatorum	1,337	Scarlet fever	19,227
Pneumonia	11,861	Smallpox	742
Puerperal fever	583	Typhoid fever	362

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place		Apr. 3–30, 1932	May 1–28, 1932	May 29–June 25, 1932	Week ended— July, 1932: 2	9	16	23	30	August, 1932: 6	13	20	27	September, 1932: 3	10	17	24	October, 1932: 1	8	15
Baluchistan	C							18	11	35	11	2	1							
	D							6	9	17	11									
China:																				
Amoy	C			3	15	149	392	399	192	110	97	97	36	52	41	31	17	7		
	D			2	11	85	202	181	103	48	40	21	14	1	15	10	5	2		
Canton	C	1	2	679	203	96	37	22	6	11	8	7	13	3	5	1	5	8		
	D		1	265	73	24	7	2	1	7	4	2	3		3	1	1	3		
Dairen[1]																				
Hankow	C	3	8	16	10	10	9	60	6	156	109	113	112	56	29	12	1			
	D	1	3		3	3	2	5	3	24	13	20	16	6	4	7	1			
Hong Kong	C			9	45	33	19	21	39	30	11	8	8	8	5	4	1			
	D			9	18	33	8	7	16	15	9	5	8	5	4	3	1			
Kwantung Leased territory—District of Port Arthur	C				P				2								1			
Macao	C								30	18	25	20	4	4	1		1			
	D						5	21	29	18	25	20	4	4	1		1			
Nanking	C			254	104	111	78	104	144	112	138	169	93	104	48	13		12		
	D			79	22	21	8	19	29	24	17	14	7	14	7	1				
Newchwang	C			1	5															
	D				4															
Shanghai	C		70	588	314	317	318	411	504	454	343	347	258	131	110	47	21	11		
	D		3	53	20	21	16	35	41	39	31	28	17	11	10	6	1			
Swatow[2]	C		1	50	48	46			56	67	67	48			7	9				
	D			3	3	11			3	10	7	11			5					
Tientsin	C			41	19	144	55	54	34	32	2	1	22	5	5					
	D			8	3	8	9	2		3			1							
Tsinan—Shantung Province	C												P	P	P	P				
Tsingtao	C										5	5	22	5	5	4				
	D										1	1	8	1	1					

[1] 119 cases, 71 deaths, in Dairen, up to Aug. 6, 1932.
[2] Local unofficial reports included 159 deaths from cholera in Swatow, China, from June 10 to 30, 1932.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

CHOLERA—Continued

[C indicates cases; D, deaths; P, present]

Place		Apr. 3-30, 1932	May 1-28, 1932	May 29-June 25, 1932	Week ended— July, 1932: 2	9	16	23	30	August, 1932: 6	13	20	27	September, 1932: 3	10	17	24	October, 1932: 1	8	15
Chosen	C												8	9						
	D												8	1						
India	C	6,295	4,386	3,523	1,090	824	908	1,410	1,600	1,645	1,404	1,621								
	D	3,194	2,170	1,811	590	432	463	650	836	927	782	878								
Bombay	C					1	1		2	1										
	D					1			1											
Calcutta	C	350	649	380	143	129	76	57	52	29	47	30	22	23	20	17	16	14		
	D	148	321	186	60	53	35	23	18	8	19	13	9	8	3	5	3	6		
Rangoon	C		1	3			1								1					
	D		1	2																
India (French)																				
Chandernagor	C		19	1																
	D		12	1																
Pondichéry Territory	C										2	1								
	D										2	1								
Indo-China (see also table below):																				
Pnom-Penh	C	1	1	3						1						1	2			
	D	1	1	3												1	2			
Saigon and Cholon	C	2	6	6	1											1				
	D	2	6	4	1											1				
Japan																				
Kobe	C			2																
Osaka Prefecture	C								1											
Taiwan	C						16													
Tokyo	C			3																
Persia: Kouh Bezman	C	1																		
Philippine Islands:																				
Bulacan Province	C								2		1									
	D								1		1									
Cebu Province	C																	1		
	D																	1		
Iloilo Province	C															1	13	3		
	D															1	8	2		1

Iloilo	C							1											
	D							1											
Laguna Province	D					1													
Leyte Province	C												10	30	3	4			
	D												5	10	3	2			
Samar Province	C												21	16	17	7	12		29
	D												11	12	11	9	8		21
Manila	C																	1	
Siam	C	2	6	8			1		1										
	D	1	7	4					1										
Bangkok	C	1		2															
Straits Settlements: Singapore	C																1		
	D																1		
On vessels:																			
S. S. Narbada at Rangoon from Calcutta	C	1																	
	D	1																	
S. S. Shanghai Maru at Kobe from Shanghai	C			1				1											
S. S. President Wilson en route to Manila from Honolulu via Shanghai and Hong Kong	C				2														
	D				1														
S. S. Protesilus at Hong Kong from Shanghai	C							P											
S. S. Nikawa Maru at Hong Kong from Shanghai	C							P											
S. S. Arankola at Rangoon from Calcutta	C			1															
S. S. Shantung at Swatow from Shanghai	C						1												
S. S. Yusang at Hong Kong from Shanghai	C								1										

[3] A suspected case.

Place		March, 1932	April, 1932	May, 1932			June, 1932			July, 1932			Aug. 1-10, 1932
				1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20	21-31	
Indo-China (French) (see also table above).													
Annam [4]	C			93	20	21				8			
	D			7	2	6				4			
Cambodia [4]	C	10	25	12	6		13	16	13	11	5	2	6
	D	5	11	2	1		10	12	7	10	4	2	3
Cochin-China [4]	C	9	27	11	30		17	17	17	16	10	5	2
	D	5	18	8	21		16	12	14	15	8	4	1
Laos [4]	C		7										
	D		3										

[4] Reports incomplete.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE [1]

[C indicates cases; D, deaths; P, present]

Place		Apr. 3–30, 1932	May 1–28, 1932	May 29–June 25, 1932	Week ended— July, 1932: 2	9	16	23	30	August, 1932: 6	13	20	27	September, 1932: 3	10	17	24	October, 1932: 1	8
Argentina:																			
Chaco—Villa Angela	C															6			
	D															3			
Cordoba Province	C	2																	
Rosario	D		1																
San Luis Province	C			2							1								
Belgian Congo	C		2																
British East Africa (see also table below):																			
Tanganyika	C			20															
	D			11															
Uganda	C	39	37	69	24	21	26	12	10	17	16	19	27						
	D	36	31	62	25	21	22	11	9	14	14	19	27						
Canary Islands: Palma Island—Los Lanos	C		1																
Ceylon: Colombo	C	2	5	13	5	1						1		2	1	2	3		
	D	2	4	13	5	1								2	1	2	3		
Plague-infected rats		5	8							2				1				1	
Chile: Antofagasta—Plague-infected rats										3									
Dutch East Indies:																			
Java and Madura	D	365	279																
Surabaya	C									1									
	D									1									
West Java	C	239		196	41	45	44	50	70	67	63	54	47						
	D	237		195	42	45	44	49	70	67	63	51	48						
Ecuador (see table below).																			
Egypt:																			
Alexandria	C		12	4	3	1		1			1	5	1						1
	D		3	4	1	1						5	1						
Assiout	C								1										
Beheira	C	1	2	2				1	1						1	1	1		
	D	1	3	1				2											
Beni Suef	C	37	2										1						
	D	8	3																
Gharbieh	C			3															1
	D			1															
Minieh	C							1							1	1		3	1
	D							1											

Great Britain: Liverpool—Plague-infected rats																	[2]1		
Hawaii Territory:																			
Hawaii Island—Hamakua—Kukaiau—Plague-infected rats			1	1															
Maui Island—																			
Makawao	C											1				1			
	D										1					1			
Plague-infected rats												2	2					1	
India	C	5,197	1,673	448	285	287	225	325	519	520	761	745							
	D	3,219	1,260	302	150	151	143	187	291	308	465	418							
Bassein	C	5	2	3		2			1	1	1	1	1					1	
	D	4	2	3		1			1	1	1	1	1					1	
Bombay	C	19	5	1											1	3			
	D	15	4	1			1					1			1	3			
Plague-infected rats		122	58	23	5	5	5	6	10	10	6	6	2	7	10	8	11	9	
Madras	C	[3]1							5										
	D	1																	
Madras Presidency	C	69	40	123	60	53	42	78	80	59	57	51	81						
	D	24	11	38	27	17	27	27	30	49	28	24	18						
Rangoon	C	7	1	1	2				1			2	3						
	D	6			2				1			2	3						
Plague-infected rats		5	3	3	2	2	1		1	3	1								
Indo-China (see table below).																			
Iraq: Baghdad	C			1				1			1	2		1			1		
	D																1		
Madagascar (see table below).																			
Morocco	C					1	5	1											
Peru (see table below).																			
Senegal (see table below).																			
Siam	C										1			6					
	D													3					
Southwest Africa.[4]																			
Syria: Beirut	C	2		1	2		1	1	1			1	1		3		1	2	1
United States:																			
California—																			
Los Angeles—Plague-infected rats		1	2	1															
San Benito County—Plague-infected ground squirrels										2									
On vessels:																			
Steamship Columbia, at Naples from Barcelona—Plague-infected rats				2															
S. S. City of Oxford at Liverpool from Alexandria—Plague-infected rats														1					
S. S. Figuig at Marceilles from Bona and Philippeville	C													1					

[1] Including plague in the United States and its possessions.
[2] At dock where steamship City of Oxford was berthed.
[3] An imported case.
[4] 144 cases of plague with 35 deaths were reported in Ovamboland, Southwest Africa, up to July 16, 1932. Antiplague measures have been taken.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place		March, 1932	April, 1932	May, 1932	June, 1932	July, 1932	August, 1932	September, 1932
British East Africa (see also table above): Kenya	C	22	18	20	39	65	30	----
Ecuador:								
Province—								
Chimborazo	C	----	6	10	2	----	----	----
Loja	C	----	----	----	----	4	----	4
	D	----	----	----	----	3	----	2
Indo-China	C	P	9	2	1	2	2	----
	D	----	6	1	1	2	2	----
Madagascar:								
Province—								
Ambatolampy	C	25	----	----	----	----	----	----
	D	25	----	----	----	----	----	----
Ambositra	C	81	19	----	2	20	----	----
	D	67	17	----	2	20	----	----
Antsirabe	C	54	21	26	10	31	----	----
	D	53	21	26	9	30	----	----
Meavatanana	C	4	----	----	----	1	1	----
	D	4	----	----	----	----	----	----
Miarinarivo	C	9	6	1	3	10	----	----
	D	9	6	1	3	9	----	----
Moramanga	C	3	----	----	----	15	2	----
	D	3	----	----	----	15	2	----

Place		March, 1932	April, 1932	May, 1932	June, 1932	July, 1932	August, 1932	September, 1932
Madagascar—Continued.								
Province—Cont.								
Tamatave	C	----	----	----	1	2	1	----
	D	----	----	----	----	1	1	----
Tananarive	C	71	42	20	13	24	----	----
	D	70	40	20	12	24	----	----
Peru	C	1	2	5	2	----	----	----
Department—								
Lambayeque	C	----	----	----	2	----	----	----
Lima	C	----	----	----	----	1	----	----
	D	----	----	----	----	1	----	----
Lima	C	1	2	1	2	----	----	----
	D	----	----	----	1	----	----	----
Senegal:								
Dakar [5]	C	10	----	----		10	37	----
	D	5	----	----	----	9	28	----
Louga [5]	C	----	----	3	1	4	1	----
	D	----	----	2	1	3	1	----
Rufisque [5]	C	----	----	3	21	28	23	----
	D	----	----	3	17	27	21	----
Thies [5]	C	----	----	----	8	16	5	----
	D	----	----	----	3	13	----	----
Yombel [5]	C	9	----	----	----	----	----	----
	D	5	----	----	----	----	----	----

[5] Reports incomplete.

SMALLPOX

Place		Apr. 3-30, 1932	May 1-28, 1932	May 29-June 25, 1932	Week ended— July, 1932					August, 1932				September, 1932				October, 1932	
					2	9	16	23	30	6	13	20	27	3	10	17	24	1	8
Algeria:																			
Algiers	C			2									1					1	
Constantine Department	C	2	2																
Philippeville	C	1																	
Southern Territories	C								2										
Argentina: Formosa Province	C															P.			
Brazil:																			
Porto Alegre (alastrim)	C	8	4	5	3		2	2	5		4								
Santos	C						2												
British East Africa: Tanganyika	C		90	51	2	29	1		5	62	49	52	4						
	D			17							3	1	1						
British South Africa																			
Northern Rhodesia	C			4	39	6				1									
Southern Rhodesia	C	7																	
Canada:																			
British Columbia	C			[1] 1															
Manitoba	C	1						[1] 1	1										
Ontario	C	6	24			[1] 1				3					[1] 3				
Quebec	C			[1] 1															
Saskatchewan	C	8	13	[1] 3		[1] 3		[1] 8							[1] 1		6		
China:																			
Amoy	C	17	8	1															
	D	11	6	1															
Canton	C	81	42	10	1	1	1		1	2		1		1				2	
	D	1	1																
Foochow	C	P	P	P		P		P		P		P		P		P			
Hankow	C	3	5																
Hong Kong	C	55	24	12	1	1	1			2									
	D	20	17	12	1	2		1		2									
Manchuria: Dairen	C	8	2	5															
	D	2	2	3															
Nanking	C							3											
Shanghai	C	90	33	6															
	D	35	13	3															
Tientsin	C	2	1	2															

[1] These cases of smallpox are for periods of 2 weeks.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Apr. 3-30, 1932	May 1-28, 1932	May 29-June 25, 1932	Week ended—															
					July, 1932					August, 1932				September, 1932				October, 1932	
					2	9	16	23	30	6	13	20	27	3	10	17	24	1	8
Chosen (see table below).																			
Colombia: Cali	D											2							
Dahomey	C	5	2	24	4	1	3												
	D	1		7	4		2												
Dutch East Indies	C					6						1							
Egypt:																			
Alexandria	C		2	1			1	3	3	3	1	2	1	3	3	5	2	2	1
Cairo	C						1		1	2		1	1	2		1	3		
Suez	C	4	1																
Finland	C		1						1										
Gold Coast (see table below).																			
Great Britain:																			
England and Wales	C	315	268	140	22	35	37	10	18	25	16	17	13	10	9	19	7	23	
London	C	137	144	100	19	28	27	5	11	17	10	10	4	1	1	11	2	15	
London and Great Towns	C	257	218	128	21	32	32	10	15	21	14	17	12	5	4	17	4	21	
Greece (see table below).																			
Honduras:																			
Ceiba	D	2																	
Puerto Castilla	C	4	1	2			1	P										1	
Tegucigalpa	D												1						
Tela	C	2	1											1					
India	C	13,716	13,268	11,646	2,135	1,969	1,916	1,994	1,550	1,714	1,284	1,171							
	D	2,895	3,283	2,929	547	521	517	497	471	425	340	298							
Bassein	C	1									1								
	D	1										1							
Bombay	C	25	36	22	5	3	9	9	14	9	9	10	12	10	5	5	7	6	
	D	10	12	13	3	3	6	8	5	6	4	2	8	4	5	4	6	3	
Calcutta	C	133	93	64	12	12	10	6	9	6	9	5	2	6	6	9	5	3	
	D	99	67	47	9	10	8	6	7	4	5	4	1	4	2	1	3	3	
Chittagong	C		2																
	D		1																
Cochin	C	1						2											
Karachi	C	29	16	20	1				1			1		1	1			1	
	D	9	6	4					1						2				

Madras	C	58	47	22	8	8	6	13	11	13	7	16	19	16	10	6	14	29	
	D	11	11	8	2	3		2		4		2	2		3		1	1	
Moulmein	C	1		5						1			1	1	1				
Negapatam	C		3																
	D		1																
Rangoon	C	260	66	29	8	7	9	2		1		4					1		
	D	88	28	11	2	1	3												
Tuticorin	C	5	4	1										7			7	6	
	D	3	5	1													1	2	
Vizagapatam	C				1														
India (French):																			
Karikal	C	21	11	2															
	D	12	7	1															
Pondichéry Territory	C	22	47	7	3		5	3	2	5	5	4	7	4	4	3	4	3	
	D	19	47	7	3		5	3	2	5	5	4	7	4	4	3	4	3	
Indo-China (see also table below):																			
Saigon and Cholon	C	113	113	18	2	1	2	2	2	4		2	2	1		1	1		
	D	101	30	17	2	1	2	2	2	4		2	2	1		2			
Iraq:																			
Baghdad	C	27	21	27		4	1	4	3		1		1	5			1	3	
	D	13	8	12		1			1		1			1			1	1	
Basra	C	4	8	8		4							3	1	1	1	2	10	5
	D	4	3	2		1	1						1		1	1	2		1
Ivory Coast (see table below).																			
Japan:																			
Kobe	C	1	10																
	D		1																
Nagasaki	C		13	3															
Osaka Prefecture [1]	C	93	82																
Osaka	C		1																
Taiwan	C	1																	
Mexico:																			
Chihuahua	D	1	1	5				1	2			1							
Durango	D	1																	
Jalisco (State)—Guadalajara	D	2	2	2															
Mexico, D. F	C	16	17	18	6	2	5	3	3	3		6	5	2					
	D	2	1				3		1										
Monterrey	C	2	2																
Saltillo	D		3	2	2	1					3		4	1					
San Luis Potosi	D	2	2	1															
Torreon	C	3	3	3														4	1
	D	3	3	2															
Morocco (see table below).																			
Nigeria	C	116	1,043	234				128					380			22			
	D	19	333	53				15					24			4			
Palestine	C		1				1												
Poland	C		1	1							1								
	D		2	1															
Portugal:																			
Lisbon	C	26	29	25	1	2	3	4	6	5	4	1	4	1	2	2	2	2	
Oporto	C	21	24	23	8	7	10	4	5	12	5	1	8	1	6	3	1		

[1] 264 cases of smallpox were reported in Osaka Prefecture, Japan, from Mar. 1 to May 28, 1932.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Apr. 3-30, 1932	May 1-28, 1932	May 29-June 25, 1932	Week ended— July, 1932					August, 1932				September, 1932				October, 1932	
					2	9	16	23	30	6	13	20	27	3	10	17	24	1	8
Sarawak	C						7												
Siam	C		1	9															
Sierra Leone [1]	D			5															
Straits Settlements	C													1					
	D			3															
Sudan (Anglo-Egyptian)	C	3		3										1					
Syria (see table below).																			
Turkey (see also table below). Istanbul	C	1	1	2															
Union of South Africa:																			
Cape Province	C	P	P	P	P	P	P												
Orange Free State	C	P																	
Transvaal	C	P	P	P															
Upper Volta	C		11	1								1							
	D		1																
On vessels:																			
S. S. Tuscania at Suez from Bombay	C			1															
S. S. Tilawa at Singapore from Amoy and Hong Kong	C			1															
S. S. Marinix Van Ste. Aldegonde at Port Said	C				2														
S. S. Ethiopia at Rangoon from Shanghai	C			1															
S. S. Madras City at Kobe from Shanghai	C			1															
S. S. Ranjput at Cochin from Colombo	C							1											

[1] From Mar. 6 to July 9, 1932, 878 cases of smallpox, with 13 deaths, were reported in Sierra Leone.

Place		March, 1932	April, 1932	May, 1932	June, 1932			July, 1932			August, 1932			Sept. 1-10, 1932
					1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-31	
Gold Coast	C			2										
Indo-China (see also table above)	C	727	568	289	61	130	60	72	54	62	36	42	69	73
	D	342	241	83	27	41	31	20	9	29	16	17	28	36
Ivory Coast	C				19									
	D				1									
Syria: Beirut	C		2					1					1	

Place		March, 1932	April, 1932	May, 1932	June, 1932	July, 1932	August, 1932
Chosen	C	30	55	55	50	9	
	D	9	5	8	4	7	
Greece	C	1	8			2	

Place		March, 1932	April, 1932	May, 1932	June, 1932	July, 1932	August, 1932
Morocco	C	308	101	101	27	11	19
Turkey (see also table above)	C	2				3	30
	D						3

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

Place		Apr 3-30, 1932	May 1-28, 1932	Week ended— June, 1932: 4	11	18	25	July, 1932: 2	9	16	23	30	August, 1932: 6	13	20	27	September, 1932: 3	10	17	24	Oct. 1, 1932
Algeria:																					
Algiers	C	40	61	8	5	5	12	33					4	1	5	26	6	2		2	5
Constantine Department	C			1				9		69	24	15	4	1							
Oran	C		1	10																	
Bulgaria	C	45	38	4	5	3	3	3		7			3	1							
	D	9	3	1		1															
Chile:																					
Antofagasta	C		1				1														
Iquique	C				1						1										
Santiago	C	1	1	1	5	1	1					8	1	2							
Talcahuano	D												1								
China.																					
Hankow	C		2			1		1													
Tientsin	C		1																		
Chosen (see table below)																					
Czechoslovakia (see table below).																					
Egypt:																					
Alexandria	C		1	5	2		1								1	1	3	1			
Beheira	C	14											15							21	
	D	5											1							7	
Dakahlia	C	1	69																		
Gharbieh	C	5																			
	D	2														1					
Port Said	C			1					1	2		2	1					1			
Provinces	C	222	163	139				72	50				33		16	6					
	D	43	8	10				2	5				2								
Greece (see table below).																					
Guatemala (see table below).																					
Irish Free State:																					
Cork County—Schull	C											1									
Kerry County—Dingle	C															1					
Roscommon County—																					
Leitrim	C		1																		
	D		1																		
Roscommon	C			1																	

Lithuania (see table below).																					
Mexico:																					
Mexico, D. F.	C	11	8	2	4		1	3	3	3	2		2		2	1	4	2	3		
	D	3	2		1		1	1	1	1					2	2	2	3	2		
Monterrey	C													1							
	D													1							
Torreon	C								1								6				
Morocco	C	34	19	13	5	4	4	5			1	1	2	4	1	1	5		1	1	
	D	1			3									1							
Palestine	C		1	2	1		1		1							2			4	1	1
Persia	C		123	69			41	54				7				3					
	D		4	5			1														
Poland	C	414	380	83	77	21	23	38	30	18	15	11	9	7	2	6	5	3	12	18	
	D	39	25	3	4	1	6	3	3	1	1	1	1				1	1		1	
Portugal:																					
Lisbon	C			2	5																
Oporto	C	10	3	4																1	
Rumania	C	252	234	40			5	13	18	10	15	3	7	6	4	5	3				
	D	21	23	5			5	4	1		2	1	1								
Tunisia: Tunis	C	77	55	13	9	6			3	2	3	2	3	1							
	D	4																			
Turkey (see table below).																					
Union of Socialist Soviet Republics (see table below).																					
Union of South Africa:																					
Cape Province	C	P	P	P		P	P	P	P	P	P		P	P	P	P					
Natal	C	P	P		P	P	P	P		1											
Orange Free State	C	P	P			P	P	P	P		P		P	P	P	P					
Transvaal	C			P					P	P	P										
Yugoslavia (see table below).																					

Place		February, 1932	March, 1932	April, 1932	May, 1932	June, 1932	July, 1932	August, 1932
Chosen: Seoul	C	5	4			2		
	D	1						
Czechoslovakia	C			1	5	1		
Greece	C	4	7	1		4	3	14
Guatemala	C	2	42	5		19		
	D		3		8	3		
Lithuania	C	10	32	25	13	16	7	
	D	3	3	5	1			

Place		February, 1932	March, 1932	April, 1932	May, 1932	June, 1932	July, 1932	August, 1932
Turkey	C	22	6	1		4	7	8
	D	1	3				1	1
Union of Socialist Soviet Republics	C	9,017	9,765					
Yugoslavia	C	26	5	29	34			1
	D	2	1		6			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

YELLOW FEVER

[C indicates cases; D, deaths; P, present]

Place		Apr 3-30, 1932	May 1-28, 1932	Week ended— June, 1932: 4	11	18	25	July, 1932: 2	9	16	23	30	August, 1932: 6	13	20	27	September, 1932: 3	10	17	24	October, 1932: 1	8
Bolivia.[1]																						
Brazil:																						
Bahia State—Esplanada	C		P																			
Ceara State	C	1																		1		
	D	1					2													1		
Espirito Santo State	C	1																				
	D	1																				
Parahyba State	C						1															
	D						1															
Pernambuco State	D	1					1	2		2	2								[2] 2			
Gold Coast: Avudua	C	1																				
Nigeria	C		1																			
Senegal:																						
Bakel—Kidira	C																				1	4
	D																				1	4
Upper Gambia	C																			2		
	D																			2		
Upper Volta	C									1												
	D									1												

[1] About 30 deaths from yellow fever occurred in southern Bolivia during the spring of 1932.
[2] Date uncertain.

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Observations on Experimental Meningitis in Rabbits

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HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

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CONTENTS

PUBLIC HEALTH REPORTS

VOL. 47 NOVEMBER 4, 1932 NO. 45

OBSERVATIONS ON EXPERIMENTAL MENINGITIS IN RABBITS

By S. E. BRANHAM, *Senior Bacteriologist*, and R. D. LILLIE, *Passed Assistant Surgeon, National Institute of Health, United States Public Health Service*

Lack of success in producing meningococcus infection with dependable regularity in the smaller laboratory animals has for some time seemed the greatest obstacle in the way of satisfactory evaluation of therapeutic antimeningococcus serums. During January, 1931, a study of the possibility of producing meningococcus meningitis in rabbits was undertaken. These experiments met with a degree of success, but were complicated by several factors which prevented constant and dependable results.

Recently Zdrodowski and Voronine (1) have described the production of meningococcus meningitis in rabbits, using a technique almost identical with our own. These workers succeeded in producing meningitis in 90 per cent of their rabbits, whereas we ourselves obtained this condition with certainty in a smaller proportion of the rabbits injected. A brief summary of our work was published in the PUBLIC HEALTH REPORTS for August 12, 1932 (2).

We are presenting the complete results of this investigation with a twofold purpose in view: (1) Our experiments offer a partial confirmation of those of Zdrodowski and Voronine, and (2) we wish to call attention to some of the features which confuse the interpretation of meningococcus meningitis in rabbits.

EXPERIMENTAL WORK

Choice of cultures for injection.—The most recently isolated strains of meningococci that were available were used, some less than a week after their first cultivation from spinal fluid or blood, and in one group of rabbits it was possible to use the original primary culture which had been planted from spinal fluid the day before (strain 408). In other experiments it was necessary to use strains that had been isolated several weeks.

It was soon found that newly isolated strains varied greatly in virulence, and that, whereas some strains produced meningitis in rabbits, others had no apparent effect even immediately after isolation. On account of this a preliminary titration of our strains for virulence was done in mice, following, in general, the method of Murray (3), but using suspensions of 18-hour "EDB/v" agar cultures

in Ringer's solution instead of weighing out the growth scraped from this medium. The bacterial suspensions were diluted to correspond with standard suspensions of silica (4), so that the approximate number of microorganisms injected was known. For example, a turbidity corresponding to 500 parts per million of silica represented approximately 1,000,000,000 meningococci per c c (5), that with 100 parts per million represented 200,000,000, etc. A strain with a minimum fatal dose for mice of more than 200,000,000 per c c would not often produce any symptoms in rabbits. The mice were injected intraperitoneally in triplicate, each with 1 c c of the diluted suspension per 20 g weight of mouse, and death within 48 hours, with demonstration of meningococci in the blood stream, was taken as a criterion of infection. This determination of the minimum fatal dose for mice was not an accurate indicator of virulence for rabbits, but it served as a valuable guide in choosing strains when many were available.

For the rabbit injections, suspensions of the strains chosen were made, as described above, from 18-hour growth on "EDB/v" agar or rabbits' blood agar in Ringer's solution with a pH of 7.0 to 7.4. The usual dose given to rabbits was 0.2 c c containing one-fifth billion meningococci, though a few rabbits were given as much as one-third billion or as little as one-tenth billion. This seems a large dose, but it is less than is usually required to kill a 20-g mouse.

The strains of meningococci used in these experiments are indicated in Table 1.

TABLE 1.—*The strains of meningococci used and the results of injecting them into rabbits intracisternally*

No.	Strain	Source	Date of isolation	Date of injection into rabbits	Days since isolation	Clinical meningitis in rabbits
1	396	Spinal fluid; moderately severe case in adult; recovered.	11- 1-30	2- 3-31	95 days	None.
2	398	Spinal fluid; fatal case in adult	11-14-30	2- 3-31	81 days	Do.
3	401	Spinal fluid; severe case in child, outcome unknown.	11-25-30	1-29-31	35 days	In 50 per cent.
				2-25-31	62 days	None.
4	406	Spinal fluid; severe case in 10-year-old child; outcome unknown.	2-12-31	4-21-31	67 days	In 50 per cent.
				4-30-31	76 days	In 100 per cent.
				11- 9-31	193 days	None.
5	407	Spinal fluid; severe case in 4-year old child; outcome unknown.	2-21-31	2-25-31	4 days	In 50 per cent.
				4-21-31	54 days	Do.
6	408	Spinal fluid; fatal case in adult	2-24-31	2-25-31	1 day	In 100 per cent.
7	411	Spinal fluid; severe case in child; fatal.	3-13-31	4-21-31	38 days	In 50 per cent.
				4-28-31	45 days	In 60 per cent.
8	413	Blood; fatal fulminating case in 6-year old boy.	3-20-31	4-30-31	40 days	In 75 per cent.
				10-20-31	172 days	In 60 per cent.
				11- 2-31	185 days	None.
9	414	Blood; adult; recovered	3-28-31	5-20-31	54 days	In 75 per cent.
10	419	Spinal fluid; severe case in 2-year-old child; recovered.	4-16-31	5-30-31	25 days	None.
11	198	Spinal fluid; fatal case in adult	3-11-29	11-14-31	2 years or more.	None (cultures).
				7-12-32		In 50 per cent (filtered suspensions).
12	331	Spinal fluid	5- 1-30	7-12-32		In 77 per cent (filtered suspensions).
13	302	do	3-15-30	7-12-32		In 100 per cent (filtered suspensions).
14	267		(1)	7-12-32		None (filtered suspensions).

[1] Older strain.

Method of injection of rabbits.—The rabbits used generally weighed 1,500 to 2,000 grams, though a few were larger or smaller. Weight and temperature were recorded every day with each animal as long as it was under observation. Injections were made directly into the cisterna magna, under light ether anesthesia, by a method devised by Armstrong (6). When this is properly done, the animal shows no untoward effects, and as soon as the anesthesia wears off is able to hop about in a normal lively fashion.

Effects of injections of living virulent cultures upon rabbits.—According to the symptoms that developed after these injections, the 49 rabbits that were given young living cultures may be placed in four general groups:

(1) In this group the symptoms seem to resemble those of the "forme (b)" of Zdrodowski and Voronine. The course of the disease proceeded with such rapidity that it was not easy to follow. Rapid breathing and extreme prostration developed within a few hours after injection, and death followed in 12 to 18 hours, or even earlier in a few cases. Since even slight manipulation frequently causes a rise of temperature in rabbits, the presence or absence of fever in these animals so soon after injection could not be determined satisfactorily. Twelve rabbits showed this rapidly fatal course of symptoms following injection with living cultures. Protocol No. 1 presents the history of rabbit B4, which is a typical example of this group.

(2) This small group of four rabbits was, in many respects, the most interesting of all. The course of the disease was less rapid, giving time for definite and characteristic symptoms to develop. These animals showed no fever. Dyspnea and marked prostration were followed by marked rigidity of the neck. Bending the animal's head even slightly was likely to cause it to cry out as if with pain. The rabbits became very sensitive, and even a touch caused tetanic spasms or convulsions. Death occurred in two to four days. This clinical picture corresponds closely to that described by Zdrodowski and Voronine as "forme (a)." Protocol No. 2 describes the course of infection in rabbit C5, which is similar to that of the other three rabbits showing this clinical picture.

(3) This group of seven rabbits showed paralysis, which developed slowly and which resembled the "forme (c)" referred to by Zdrodowski and Voronine. Usually the paralysis began in the posterior extremities, but occasionally it began in the fore limbs. Respiratory difficulty was a frequent accompaniment of this condition. All of this group of animals except one showed a definite fever (40° to 41.5° C.) on the second or third day after injection, which was usually coincidental with the first evidence of paralysis.

In some of these rabbits the paralysis which developed on the second or third day was slight and the recovery complete within five

to six days after injection. We have neither bacteriological nor histopathological evidence that these recovered animals had meningitis. Nevertheless, the regularity with which paralysis appeared on the second and third days after injection constitutes clinical evidence that makes their inclusion in this third group necessary.

In other animals of this group the paralysis was marked, and involved practically the whole body. In 2 of the 7 death resulted; but the remaining 5 recovered completely in two to six days after the first appearance of symptoms. Protocol No. 3 gives an account of rabbit D1, which showed partial paralysis followed by complete recovery. Protocol No. 4 describes the case of rabbit F8, in which the progressive paralysis proved fatal.

(4) This group of 27 rabbits showed no definite symptoms. All except three showed fever on the second day which was as great as that shown by any rabbit in Group 3 (40° to 41.5° C.). A few developed some weakness of the posterior extremities and had an inclination to walk instead of hop, but there was no definite paralysis, and most of the animals remained lively.

AUTOPSY FINDINGS

All of the rabbits that died were carefully autopsied. Cerebrospinal fluid for study was withdrawn by cisternal puncture before the brain was exposed, and then the top of the skull was removed. There was little to be seen grossly except that the meninges were often adherent, and in two instances purulent clots were found on the surface of the brain. Three or four showed an increased amount of cerebrospinal fluid.

Smears were made from the withdrawn cisternal fluid and from the meninges and were stained by both Wright's and Gram's methods. Cultures were made on blood agar from both of these sources and also from the heart blood. The brain was then removed and placed in Orth's fluid for fixation.

Whenever feasible, total and differential cell counts were made on cisternal fluid. However, the fluid obtained at autopsy was not suitable for making satisfactory counts, because the leucocytes were degenerated and there were but few animals (the four of Group 2 and one of Group 3) which gave an opportunity for the collection of appreciable quantities of such fluid during the severe stage of the disease. Protocol No. 4 describes such a rabbit (F8). Other information could be obtained from the Gram and Wright stained smears of the cisternal fluid drawn just before autopsy. In 11 of the rabbits of Group 1 (those dying in 12 to 18 hours) Gram-negative cocci could be found, either lying freely in pairs or singly, or else within polymorphonuclear leucocytes. Sometimes the leucocytes were filled with cocci. Intra and extra cellular cocci could be seen in similar smears

from all rabbits of Group 2 (those showing characteristic symptoms of meningitis) and in one of the three rabbits dying in Group 3 (those showing progressive paralysis).

BACTERIOLOGICAL FINDINGS

Cultures on blood agar were made from cisternal fluid, from meninges, and from the heart of all rabbits autopsied. Although what were presumably meningococci could be seen in smears from meninges and cisternal fluid of nearly all rabbits inoculated with living cultures, cultures of Gram-negative cocci were obtained from only six—five times from cisternal fluid, twice from meninges, and twice from the heart. When these Gram-negative cocci were first isolated they looked like typical meningococci, both in morphology and in colony appearance. But their identity with the meningococcus could not be proved by any of the means available. The strains given to these rabbits were 408 (Group I) to 2 of the rabbits, 406 (Group III) to 2 rabbits, and 413 (Group III) to 2 rabbits; it was impossible to identify the recovered strains with these. In respect to these bacteriological findings our results are at variance with those of Zdrodowski and Voronine. Whether the cultures of Gram-negative diplococci which we obtained from the six rabbits were microorganisms resembling meningococci which may be found naturally in rabbits, or whether the meningococci were altered by passage through the rabbits, it is impossible to say at the present time.

STUDIES WITH KILLED CULTURES

In protocol No. 5 it can be seen that one of the rabbits receiving living cultures without developing any symptoms, except fever, was killed and its brain was examined histologically. The picture found was essentially identical with that in the brains of the rabbits dying of meningitis.

Failure to recover meningococci, together with the histological findings in the case of this rabbit, suggested that the symptoms produced in these animals might not be due entirely to infection. This idea led to the examination of the brains of several rabbits which had received killed cultures. These rabbits were treated just as the others, except that the suspensions of meningococci were boiled for five minutes before they were injected. Most of these animals showed some fever on the second day, but were otherwise normal and lively. They were chloroformed approximately 24 hours after injection and examined just as were the rabbits described above.

Cultures from these rabbits were invariably negative, but smears from cisternal fluid showed cocci within the abundant polymorphonuclear leucocytes.

EXPERIMENTS WITH MENINGOCOCCUS PRODUCTS

The similarity of the histopathologic picture in the brains of rabbits dead of acute meningitis after injection with living cultures and in lively rabbits that had received boiled meningococci is described below. Such findings suggested that the intact meningococci might not be necessary to produce the clinical symptoms noted in the rabbits of Groups 1, 2, and 3. It was decided to use the equivalent of a suspension without the cells.

Rabbits were therefore injected intracisternally with filtered meningococcus suspensions of strains 267, 331, 302, and 198. The filtered suspensions were prepared as for the Shwartzman reaction (7), except that no preservative was added and Berkefeld N instead of V filters were used. Two-tenths of a cubic centimeter was used for each injection.

Of 38 rabbits given intracisternal injections of the filtered suspensions, 26, or 68 per cent, showed definite symptoms of intoxication, and only 2 of the 26 rabbits recovered. These rabbits, as well as those receiving the living virulent cultures, fell into three groups:

(1) The animals in group 1 usually died in 5 to 18 hours. Dyspnea and a marked weakness of limbs developed after an hour, the rabbits hopping only when forced to do so, and then sluggishly. The course of the intoxication was difficult to follow, as was the case with the Group 1 rabbits receiving living virulent cultures. Rabbit M2, an example of this group of 16 rabbits, is described in protocol No. 7. Rabbit M3, one of those which died too quickly for an exudate to form, is described in protocol No. 8.

(2) This group of three rabbits corresponds to Group 2 receiving living cultures. The animals in this group survived long enough for striking symptoms to develop. Prostration increased, sometimes accompanied by fever, and general spasticity with marked rigidity of the neck appeared. The only apparent difference between these animals and those of Group 2 given living cultures was the occurrence of fever, and the number of animals in these groups was too small to justify the drawing of conclusions as to the constancy of this feature. Protocol No. 9 gives an account of rabbit M6 of this group.

(3) This group of seven rabbits showed a progressive paralysis indistinguishable from that seen in the rabbits of the Group 3 that were given living cultures. In 3 of these animals the intoxication was fatal in 23, 41, and 54 hours, respectively; 2 other animals were very ill, the lower part of the body being completely paralyzed for several days; in the remaining 2 the paralysis was marked, but less extensive.

Two other rabbits developed dyspnea and some degree of prostration within two to three hours after injection, but were completely recovered by the next day.

Cultures from the meninges of all of these animals were negative. Smears from cisternal fluid withdrawn just before autopsy showed numbers of polymorphonuclear leucocytes and lymphocytes in all except those rabbits that had died within six to eight hours. In these, the cells were relatively few.

It seems that filtered suspensions of meningococci when injected intracisternally can produce meningitis in rabbits. Clinically, it has been impossible to distinguish the conditions produced in these animals by virulent living cultures and those produced by the filtered suspensions.

It is interesting to note that the cultures used for preparing the filtered suspensions were not in themselves sufficiently virulent to kill rabbits in the one-fifth billion cell doses that were given. The filtered suspensions were quite concentrated and represented the fluid which had suspended many times this dose.

PATHOLOGIC HISTOLOGY

The following material was subjected to histologic examination:

(1) Brain from 13 animals inoculated with living meningococci, falling into the following clinical groups: Seven in Group 1, three in Group 2, two in Group 3, and one in the febrile, otherwise asymptomatic, Group 4.

(2) Brain from three animals killed 24 hours after intracisternal injection of boiled meningococci.

(3) Brain from six animals dying or killed *in extremis* after injection of filtered meningococcus suspensions.

The brains were removed and fixed entire either for 48 hours in Orth's fluid (2.5 per cent aqueous solution of potassium bichromate 10 parts, concentrated formalin 1 part), or in a solution containing 4 per cent formaldehyde and 0.9 per cent sodium chloride, kept over calcium carbonate for one or more days and followed by further hardening in 2.5 per cent potassium bichromate for 48 hours. From these bichromate solutions the brains were transferred directly to 50 per cent alcohol for 8 to 16 hours, then for a similar period to 80 per cent alcohol. Blocks were then cut, usually five transverse sections—through the cerebrum and caudate nuclei, through the thalamus, hippocampi, and parietal cortex, through the oculomotor roots, anterior colliculi, and often the adherent occipital cortex, through the pons and cerebellum, and through the enlargement of the medulla. Dehydration was completed in three changes of U. S. P. acetone; clearing followed in benzol or gasoline (cleaner's grade), and the blocks were embedded in paraffin *in vacuo*. Sections of 5 μ to 8μ thickness were stained in iron chloride hematoxylin (Weigert) and picrofuchsin (Freeborn-Van Gieson), in toluidine blue, by a Gram method (8), and in buffered eosin-polychrome methylene blue (9).

The major significant histologic finding was a purulent or fibrino-purulent leptomeningitis. (Figs. 1, 2, 3.) This was generally most marked over the base of the pons and cerebral peduncles, around the mid-brain and thalamus, and in the cerebellopontine angles. With denser and more extensive meningeal exudation, polymorphonuclear infiltration extended inward in the sheaths of perforating vessels, marginal purulent infiltration (figs. 1, 4) of the brain substance appeared in various locations, and miliary intracerebral abscesses (fig. 5) were found. In such more extensive meningitides, purulent and sanguino-purulent exudates were sometimes found in the ventricles. (Fig. 6.) Other inconstant findings were edema and lymphocyte infiltration of the chorioid plexi, and meningeal and intracerebral hemorrhages. (Fig. 1.)

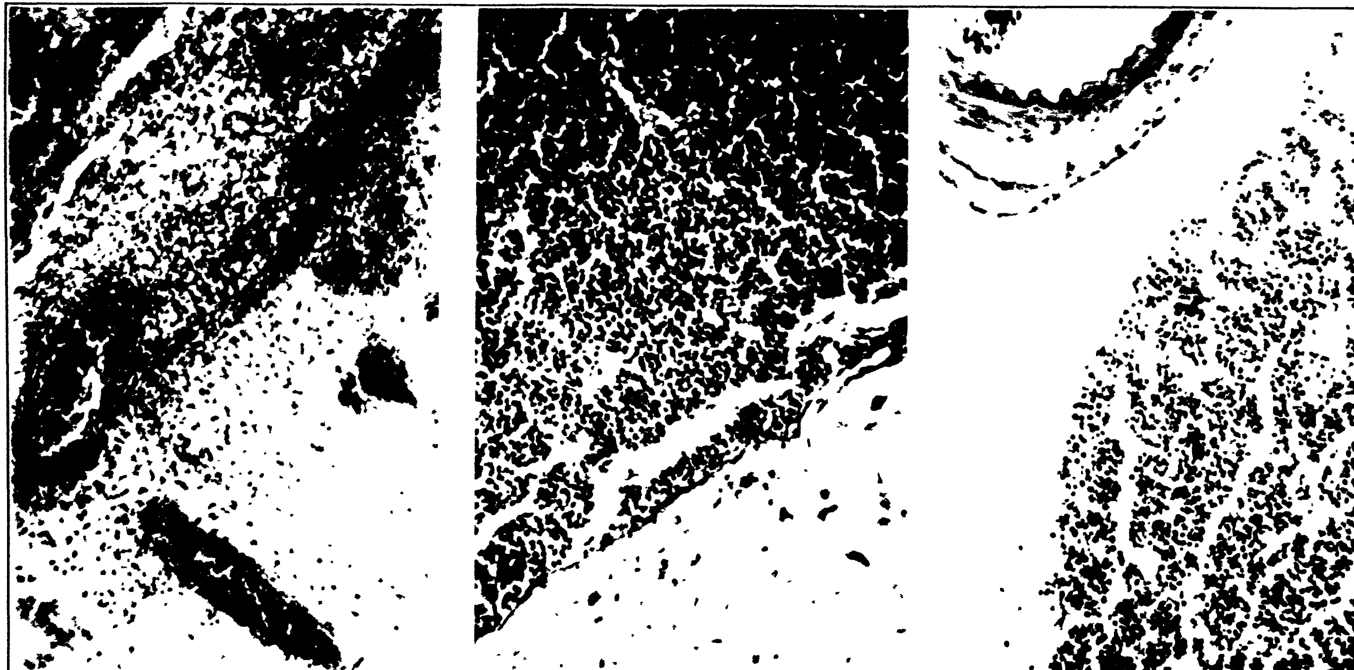
The most extensive changes were present in three animals killed 24 to 48 hours after injection. All of these showed the spastic rigidity symptom complex; two were inoculated with living cocci (protocol 2), one with filtered suspension (protocol 9). Less marked changes were present in animals dying 11 to 18 hours after inoculation and showing no definite neurologic symptoms. These comprised seven inoculated with living cultures (protocol 1) and three with filtered suspensions (protocol 7). In five of this group there was a variable amount of lymphocyte admixture in the meningeal exudate. It is doubtful whether this lymphocyte exudation was due to the injection of meningococci, as such exudates are frequently seen in supposedly healthy animals. Thirteen of a series of twenty apparently healthy rabbits examined in this laboratory to determine the prevalence of the "spontaneous" granulomatous meningo-encephalitis of rabbits showed lymphocyte infiltration in the meninges. Hence this type of meningeal exudation in animals under experiment is often assignable rather to this "spontaneous" encephalitis than to the experimental procedure.

In the animal (protocol 5) from the febrile, otherwise symptom-free, Group 4, which was killed 24 hours after inoculation, the picture of this "spontaneous" encephalitis dominated, and there was only slight diffuse and focal admixture of polymorphonuclear leucocytes in the meningeal exudate.

Moderate (in 1) and marked (in 2) meningeal reactions were seen in the 3 rabbits killed 24 hours after injection with boiled meningococci. (Protocol 6.)

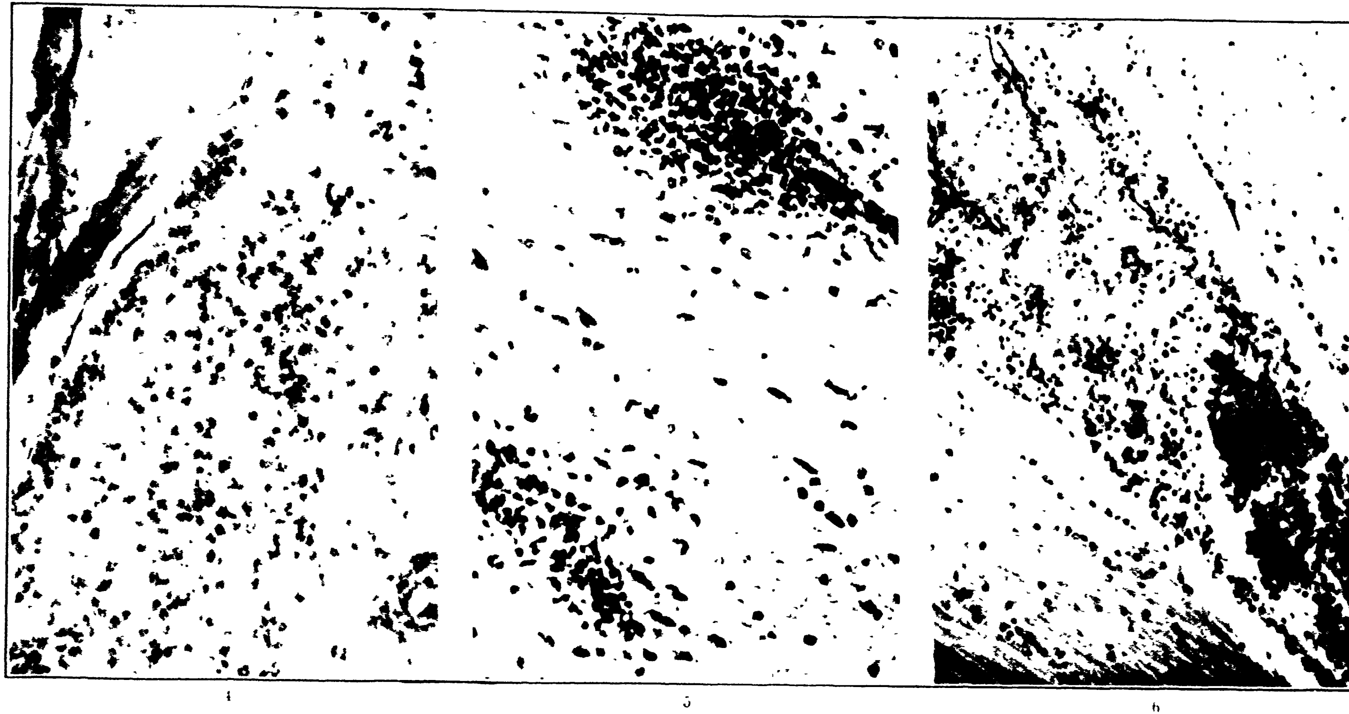
The two animals (protocol 8) dying eight hours after injection of filtered suspension showed toxic degenerative changes in nerve cells and no evident meningeal reaction.

The meningeal reaction became subacute in type in two animals killed on the sixth day (Groups 2 and 3 given living cocci). The previous purulent exudate was reduced to small encapsulating foci of fragmented leucocytes and fibrin. Elsewhere a diffuse exudation of



1 2 3

1, Rabbit B4, showing meningitis with marginal purulent infiltration and hemorrhage in occipital cortex adjacent to midbrain. Given living culture of meningococcus 407. 2, Rabbit L1, showing purulent meningeal exudate on base of thalamus. Given boiled suspension of meningococcus 433. 3, Rabbit Mo, showing purulent meningeal exudate on base of pons. Given filtered suspension of meningococcus 198



4, Rabbit L1, showing purulent marginal infiltration of dorsum of thalamus. Given boiled suspension of meningococcus 433. 5, Rabbit C5, showing miliary abscesses in thalamus. Given living cultures of meningococcus 411. 6, Rabbit L2, showing purulent exudate, choroid plexus of lateral ventricle. Given boiled suspension of meningococcus 433

lymphocytes, plasma cells and a few macrophages, and patches of fibroblast proliferation had appeared. In a rabbit dying of progressive paralysis 16 days after injection with living cocci (protocol 4) the lymphoid exudation was reduced, the purulent foci had disappeared, and fibroblast proliferation was no longer evident.

Thus an essentially identical histologic picture was produced by inoculation with living meningococci, boiled cocci, and filtered suspensions. The variations in intensity of the histologic reaction were correlated with the time interval from inoculation to death, rather than with the inoculum used. The tendency to invasion of the brain substance was possibly less after inoculation with filtered suspensions than with living or boiled cocci. The slightest reaction occurred in an animal from the asymptomatic Group 4.

DISCUSSION

It seems evident that clinical and pathological meningitis can be produced in rabbits by intracisternal injection of sufficiently virulent meningococci.

This condition was produced with certainty in only 39 per cent of the rabbits given living cultures. This 39 per cent does not include rabbits showing mild symptoms and from which neither bacteriological nor pathological evidence of meningitis was obtained.

The clinical pictures found in these animals resembled those of the three forms of meningitis in rabbits described by Zdrodowski and Voronine, viz.: (1) An acute form, terminating fatally in 12 to 18 hours; (2) a form accompanied by spasticity, retraction of head, rigidity of neck, and a sensitiveness to touch, which ended fatally in 2 to 3 days; (3) a progressive paralysis, either terminating fatally in 3 to 16 days or resulting in complete recovery.

The clinical effects of intracisternal injections of living cultures in rabbits were by no means regular. Though individual variation in resistance among rabbits no doubt played a part, the most important factor seemed to be the virulence of the meningococci used in the experiments. Strains of low virulence have been of almost no value in producing clinical symptoms in rabbits in the doses given. The tendency of meningococci to lose virulence within a short time is shown in Table 1.

It is possible that the difference between the percentage of rabbits developing clinical meningitis in the experiments of Zdrodowski and Voronine (90 per cent) and the percentage in our own (39 per cent) may be due to differences in degree of initial invasiveness. Zdrodowski and Voronine have reported considerable success in the maintenance of the virulence of their strains upon Dorsett's egg medium.

Histopathological examination of the brains of rabbits dying from the clinical conditions described above revealed a picture of acute or

subacute meningitis, with a meningeal exudate composed chiefly of polymorphonuclear leucocytes with a variable amount of fibrin and of lymphocytes.

A feature deserving attention in these studies was the failure to recover cultures of organisms that were certainly meningococci from the rabbits given living cultures, although typical Gram-negative diplococci could be seen abundantly in the meninges and cisternal fluid, both inside and outside of leucocytes. In a true infectious process it should, theoretically, be possible to recover the meningococcus in some of the rabbits. Although organisms resembling the meningococcus were removed from six, their identity could not be proved.

A histopathologic picture identical with that found in the brains of animals dying of meningitis after injection with living cultures was found in those which had received boiled suspensions of meningococci, although these latter animals showed no symptoms whatever.

Filtered, cell-free suspensions of several strains of meningococci have caused the death of rabbits, producing symptoms indistinguishable from those of the rabbits in our groups 1, 2, and 3, which seem to correspond to the three forms of meningitis described by Zdrodowski and Voronine. Sixty-eight per cent of the rabbits injected with these filtrates developed one of these clinical forms, and all except two of these died. The brains of these rabbits presented a histopathological picture indistinguishable from that obtained in rabbits which died from injections of living virulent meningococci and in those which were killed 24 hours after being given boiled cells. Exceptions to these findings were seen in those rabbits which died within eight hours after injection and in which there had not been enough time for the exudate to form.

Failure to recover the meningococcus with certainty, occurrence of a histopathological picture of acute meningitis in animals receiving boiled cultures, and the appearance of all clinical symptoms and histopathologic features of meningitis in animals given filtered suspensions of meningococci suggest that such filtrates contain "toxins" that may play an important rôle in meningitis in rabbits.

The nature of these "toxins" and their relation to "virulence" in meningococci can not be discussed here. That a true soluble toxin may play an important rôle in meningitis is suggested by the work of Ferry, Norton, and Steele (10), who have described the protection of infected monkeys by antitoxin prepared by immunizing horses with filtrates of broth cultures of meningococci. The effect of "endotoxins" of meningococci upon laboratory animals when injected intraperitoneally or intravenously has been long known, and was discussed in considerable detail by Gordon (11) in 1920.

It should be borne in mind that these "toxins" as used by us were very concentrated (7), and that the 0.2 c c given to rabbits represented the fluid which suspended many times the number of cells that were injected when the whole suspensions were used. The preparations used in these experiments were made as were the "toxic substances" used to produce the Shwartzman phenomenon, but it is not possible to know at present just what the relation of these toxins to the Shwartzman active agent may be.

SUMMARY

It is possible to produce both a clinical and a histopathologic picture of acute meningitis in rabbits by intracisternal injection of virulent strains of meningococci.

A histopathologic picture identical with that found in the brains of animals dying of meningitis was found in those which had received boiled suspensions of meningococci and which showed no untoward effects.

Clinical pictures, usually resulting fatally, corresponding to those observed in the rabbits dying of acute meningitis after intracisternal injection of living cocci, were produced in other rabbits by similar injections of filtered suspensions of meningococci. The histopathologic picture in these animals was essentially identical with that found in those receiving the living and boiled cultures.

These findings suggest that experimental meningitis in rabbits may not necessarily be an infection and that intoxication may play an important rôle.

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PROTOCOLS

PROTOCOL NO. 1—RABBIT B4

2/25/31. Weight, 870 g;[1] temperature, 40° C. Given one-fifth billion cells (0.2 c c) of meningococcus strain 407 intracisternally. Animal lively and active

[1] In these protocols g = grams.

after injection. Died in 14 hours. Cloudy spinal fluid withdrawn before autopsy showed numerous cocci free and inside of polymorphonuclear leucocytes. Cultures from cisternal fluid and from heart were negative for all bacteria.

Brain: Dense fibrinopurulent exudation in the pia mater of the mid-brain, thalamus, in patches over the cerebral cortex, and over cerebellum and pons, with little invasion of deeper cerebellar sulci. Dense polymorphonuclear infiltration of the superficial layers of the cerebral substance is seen in part of the temporoparietal and occipital cortex, thalamus, mid-brain, a few gyri of the cerebellum, and slight on the base of the pons. Polymorphonuclear infiltration with accompanying thrombosis extends in along the sheaths of some vessels in cerebral cortex and thalamus. The ventricle and chorioid plexi are not involved. Some areas of meningeal hemorrhage are seen.

Many Gram-negative intracellular diplococci are in the meningeal exudate and some in the superficial cortical infiltration.

Diagnosis: Meningitis, acute.

PROTOCOL NO. 2—RABBIT C5

4/21/31. Weight, 1,370 g; temperature, 38.9° C. Given one-fifth billion meningococci of strain 411 (0.2 c c) intracisternally. Animal normal and active after injection. Within four hours showed definite prostration and dyspnea.

4/22/31. Weight, 1,100 g; temperature, 36.8° C. Complete prostration; head retracted; convulsions when handled.

Chloroformed in late afternoon when moribund. Cisternal and spinal fluid abundant and cloudy. Both full of polymorphonuclear leucocytes, and with abundant extracellular and intracellular cocci. Cultures from cisternal and spinal fluids and from heart were negative for all bacteria.

Brain: Dense polymorphonuclear infiltration of pia over base, over cerebellum, in cerebellar sulci, in major fissures of cerebrum, scanty over convexity, with scattered fibrin clots and few lymphocytes. Polymorphonuclear infiltration along sheath of occasional perforating vessel, occasional miliary intracerebral abscesses, most numerous in thalamus. Few leucocytes in fourth ventricle; none in third or lateral ventricles. A few, occasionally paired, Gram-negative cocci are made out, sometimes in leucocytes.

Diagnosis: Leptomeningitis, acute purulent.

PROTOCOL NO. 3—RABBIT D1

4/28/31. Weight, 1,930 g; temperature, 39.4° C. Given one-fifth billion meningococci of strain 411 (0.2 c c). Lively and active after injection.

4/29/31. Weight, 1,800 g; temperature, 40.6° C. No symptoms.

4/30/31. Weight, 1,690 g; temperature, 40.3° C. Very sensitive to touch. Rapid and deep respiration. By 4 p. m. had lost use of limbs.

5/1/31. Weight, 1,705 g; temperature, 40° C. Much better.

5/4/31. Weight, 1,750 g; temperature, 39° C. Completely recovered.

PROTOCOL NO. 4—RABBIT F8

5/20/31. Weight, 1,200 g; temperature, 39.6° C. Given one-fifth billion meningococci (0.2 c c) of strain 419 intracisternally.

5/21/31. Weight, 1,160 g; temperature, 39.6° C. Complete paralysis of hind limbs.

5/22/31. Weight, 1,120 g; temperature, 40.2° C.

Increased and extended paralysis. Cisternal puncture done, removing 0.4 c c of cloudy fluid. This fluid had total cell count of 110,000 per cu. mm. A differential count showed 87 per cent polymorphonuclear leucocytes and 13 per cent lymphocytes. Meningococci were not certainly seen, and cultures were negative.

5/28/31. Weight, 950 g; temperature, 38.4° C. Complete paralysis of fore limbs as well as hind limbs.

6/1/31. Weight, 890 g; temperature, 38.6° C.

6/5/31. Died 8 a. m. Cultures from meninges and heart negative.

Brain: Some pericellular edema in cortex, some pial edema and slight diffuse lymphocyte and macrophage infiltration, in places denser, lymphocytic and perivascular, especially basally and in superior longitudinal sulcus.

No focal intracerebral lesions.

Diagnosis: Leptomeningitis, subacute.

PROTOCOL NO. 5—RABBIT G1

10/20/31. Weight, 2,200 g; temperature, 39.4° C.

10/21/31. Weight, 2,190 g; temperature, 39.4° C. Given one-fifth billion meningococci of strain 413 (0.2 c c) intracisternally.

10/22/31. Weight, 2,040 g.; temperature, 41° C. Well and lively. Chloroformed 24 hours after injection. Cisternal fluid showed polymorphonuclear leucocytes and some lymphocytes. No cocci were definitely seen. Cultures were negative.

Brain: Dense irregular infiltration of pia with lymphocytes and fewer polymorphonuclears, the latter predominating in scattered foci. Infiltration is especially marked basally in the superior longitudinal fissure, in the cerebellopontine angles, and around the mid-brain and thalamus.

The chorioid plexi of the third, fourth, and lateral ventricles showed patchy lymphocyte infiltration, and there was some polymorphonuclear and lymphocyte exudate in each of the ventricles. The plexal epithelium contained large intracellular (fat) vacuoles in most of the cells.

Lymphocyte infiltration was seen in the sheaths of a few intracerebral vessels, and typical centrally necrotic epithelioid cell granulomata were seen in the Ammon's horns.

Diagnosis: Subacute meningochorioiditis; granulomatous meningoencephalitis.

PROTOCOL NO. 6—RABBIT G5

10/20/31. Weight, 1,700 g; temperature, 39.6° C.

10/21/31. Weight, 1,750 g; temperature, 39.4° C. Given one-fifth billion meningococci (0.2 c c) of strain 413, boiled for five minutes, intracisternally.

10/22/31. Weight, 1,570 g; temperature, 40.7° C. Well and active. Chloroformed 24 hours after injection. Cisternal fluid showed abundant polymorphonuclear leucocytes and some lymphocytes. Cocci were not seen with certainty, and all cultures were negative.

Brain: One lateral ventricle contained a few clumps of leucocytes and its chorioid plexus showed slight lymphocyte infiltration. Moderate purulent pial exudate on base of temporal lobes, in temporothalamic angles, more on dorsum of thalamus and in superior longitudinal fissure behind splenium, with slight marginal leucocyte infiltration in the thalamus. Moderate purulent exudate in pia on base of pons. More extensive and fibrinopurulent in some of cerebellar sulci, with hemorrhages and leucocyte infiltration in molecular layer of adjoining cerebellar cortex. Slight to moderate purulent infiltration in pia on base and in superior longitudinal fissure in frontal region, with some leucocyte infiltration of the mesiodorsal cortex. Marginal polymorphonuclear infiltration was present in the colliculi, and the mesencephalic pia showed slight to moderate exudation. Similar purulent meningeal exudate was present in smaller amounts on the base and sides of the medulla and upper cervical cord.

Diagnosis: Leptomeningitis, acute purulent.

PROTOCOL NO. 7—RABBIT M2

7/13/32. Weight, 2,200 g; temperature, 39.4° C.

7/14/32. Weight, 2,205 g; temperature, 39.2° C. Given 0.2 c c filtered suspension of strain 302 at 2.30 p. m. intracisternally.

Animal well and lively after injection.

7/15/32. Died at 8.45 a. m. Cultures from cisternal fluid and heart were negative.

Brain: Meninges infiltrated by pseudoeosinophil leucocytes, a minority of lymphocytes and occasional macrophages especially on base of and around midbrain, pons and cerebellum, and thalamus. Edema and slight lymphocyte infiltration of chorioid plexi.

Diagnosis: Acute leptomeningitis.

PROTOCOL NO. 8—RABBIT M3

7/12/32. Weight, 1,980 g; temperature, 39.2° C.

7/13/32. Weight, 1,975 g; temperature, 39.2° C.

7/14/32. Weight, 1,975 g; temperature, 39.1° C. Given 0.2 c c of filtered suspension of strain 302 at 2.35 p. m. Animal well and lively after injection. By 4 p. m. showed dyspnea and slight prostration. Died 10.10 p. m.

Very little cisternal fluid. Cultures from it were negative.

Brain: No meningeal exudation further than few scattered lymphocytes. Diffuse degeneration of nerve cells.

Diagnosis: Toxic degeneration.

PROTOCOL NO. 9—RABBIT M6

7/12/32. Weight, 2,300 g; temperature, 39.8° C.

7/13/32. Weight, 2,300 g; temperature, 39.6° C.

7/14/32. Weight, 2,290 g; temperature, 39.4° C. Given 0.2 c c of filtered suspension of meningococcus strain 198. Well and lively immediately after injection. Seemed to feel ill during the second hour.

7/15/32. Weight, 2,210 g; temperature, 40 7° C. Marked prostration and weakness.

7/16/32. Weight, 2,170 g; temperature, 40.8° C. Spasticity all over, with marked retraction of head and rigidity of neck, which became more and more pronounced. At 12 o'clock withdrew 0.2 c c cloudy cisternal fluid which showed lymphocytes and polymorphonuclear leucocytes. Cultures were negative. At 4 p. m., when moribund, the animal was chloroformed and the brain removed.

Brain: Reduction in number, pyknosis, vacuolation, and fraying of Purkinje cells. Well-preserved nerve cells in nuclei in brain stem.

Pia: Dense purulent infiltration and marked thickening over base of pons, slight on convexity, laterally some light diffuse polymorphonuclear infiltration in cerebellar cortex. Similar dense meningeal infiltration appeared on the base of the mid-brain and thalamus, extending around the latter in moderate grade, slight in the median longitudinal fissure above the corpus callosum and between the anterior colliculi. Edema of chorioid plexi, serous and leucocytic exudate in third ventricle, lymphocytes in lateral ventricles.

Diagnosis: Acute leptomeningitis.

DEATHS DURING WEEK ENDED OCTOBER 15, 1932

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Oct. 15, 1932	Corresponding week, 1931
Data from 85 large cities of the United States:		
Total deaths	7,130	6,917
Deaths per 1,000 population, annual basis	10.2	10 0
Deaths under 1 year of age	542	628
Deaths under 1 year of age per 1,000 estimated live births [1]	45	49
Deaths per 1,000 population, annual basis, first 41 weeks of year	11 1	11.9
Data from industrial-insurance companies:		
Policies in force	70,259,724	74,607,304
Number of death claims	10,494	11,041
Death claims per 1,000 policies in force, annual rate	7.8	7.7
Death claims per 1,000 policies, first 41 weeks of year, annual rate	9.6	9.8

[1] 1932, 81 cities; 1931, 77 cities.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended October 22, 1932, and October 24, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended October 22, 1932, and October 24, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Oct. 22, 1932	Week ended Oct. 24, 1931	Week ended Oct. 22, 1932	Week ended Oct. 24, 1931	Week ended Oct. 22, 1932	Week ended Oct. 24, 1931	Week ended Oct. 22, 1932	Week ended Oct. 24, 1931
New England States:								
Maine	3	5		2		129	1	0
New Hampshire		3				1	0	0
Vermont						41	0	0
Massachusetts [1]	20	48	2	11	51	30	2	3
Rhode Island	10	5	1			81	0	0
Connecticut	1	4	2	4	7	8	0	1
Middle Atlantic States.								
New York	56	67	[1] 15	[2] 7	123	67	4	8
New Jersey	24	32	23	6	82	11	1	0
Pennsylvania	107	106			148	116	2	10
East North Central States								
Ohio	87	102	5	1	38	12	0	2
Indiana	108	68	26	8	6	42	0	2
Illinois	123	99	21	10	33	24	5	5
Michigan	23	35	11		46	29	0	2
Wisconsin	17	14	30	14	27	5	0	3
West North Central States.								
Minnesota	31	14			67	8	2	1
Iowa	23	22			4	7	0	0
Missouri	74	116		3	15	7	0	2
North Dakota	1	6			9	1	0	1
South Dakota	7	4			3	39	0	0
Nebraska	33	19	1	2		1	0	0
Kansas	46	42	2		7	11	0	1
South Atlantic States.								
Delaware	6	3		1	2	1	0	0
Maryland [3]	20	86	4	5	4	12	1	1
District of Columbia	2	24	1		3		0	0
Virginia	72				31		0	
West Virginia	82	104	13	20	32	28	1	0
North Carolina	92	186	5	8	42	24	0	0
South Carolina	31	58	379	264	3		0	0
Georgia [1]	70	53		17	2	8	0	0
Florida	20	32	3		2	68	0	0
East South Central States:								
Kentucky	77	171	6		12		0	0
Tennessee	108	177	33	11	1	6	3	6
Alabama [1]	110	107	27	5	8	3	0	0
Mississippi	44	165					0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended October 22, 1932, and October 24, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Oct. 22, 1932	Week ended Oct. 24, 1931	Week ended Oct. 22, 1932	Week ended Oct. 24, 1931	Week ended Oct. 22, 1932	Week ended Oct. 24, 1931	Week ended Oct. 22, 1932	Week ended Oct. 24, 1931
West South Central States:								
Arkansas	58	66	36	1	1	5	0	1
Louisiana [1]	31	61	6	9	1	8	1	1
Oklahoma [4]	99	89	38	17	3		0	0
Texas [1]	233	65	54	9	10		0	3
Mountain States:								
Montana	1				208	25	0	0
Idaho	9					1	0	0
Wyoming	1			1	4		0	2
Colorado	8	9			2		0	0
New Mexico	54	24	12		2		0	0
Arizona [3]	4	4	61			1	0	0
Utah [3]	1	1		7	2		0	0
Pacific States:								
Washington	1	7			2		0	1
Oregon	2	3	56	22	11	5	0	1
California	60	82	450	37	21	68	0	2
Total	2,090	2,388	1,318	502	1,070	928	23	59

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Oct. 22, 1932	Week ended Oct. 24, 1931	Week ended Oct. 22, 1932	Week ended Oct. 24, 1931	Week ended Oct. 22, 1932	Week ended Oct. 24, 1931	Week ended Oct. 22, 1932	Week ended Oct. 24, 1931
New England States.								
Maine	6	11	18	10	1	0	9	8
New Hampshire	0	1	4	3	0	0	0	0
Vermont	0	3	2	7	0	0	0	0
Massachusetts [1]	0	40	204	167	0	0	6	14
Rhode Island	0	2	30	11	0	0	1	3
Connecticut	0	39	32	30	0	0	0	7
Middle Atlantic States:								
New York	9	184	240	238	7	1	24	50
New Jersey	12	36	111	75	0	0	8	7
Pennsylvania	32	23	279	252	0	0	50	106
East North Central States:								
Ohio	1	2	412	278	0	1	32	29
Indiana	1	3	116	85	1	13	19	9
Illinois	8	32	316	201	2	2	36	45
Michigan	6	41	197	114	0	0	19	16
Wisconsin	2	37	45	51	0	0	2	5
West North Central States:								
Minnesota	4	37	58	46	0	0	2	2
Iowa	2	10	37	31	3	25	18	6
Missouri	0	2	148	69	0	8	22	31
North Dakota	0	2	7	8	1	2	2	12
South Dakota	0	0	0	17	0	2	1	2
Nebraska	0	1	39	15	5	2	2	3
Kansas	2	0	82	66	0	4	1	7
South Atlantic States:								
Delaware	0	0	8	7	0	0	2	2
Maryland [3]	1	4	60	78	0	0	14	35
District of Columbia	4	0	16	15	0	0	0	3
Virginia	4	1	88		0	1	23	
West Virginia	1	6	70	45	1	0	42	73
North Carolina	1	1	98	131	0	0	5	29
South Carolina	0	0	13	35	0	0	15	18
Georgia [1]	2	0	36	27	0	2	37	33
Florida	2	1	6	9	0	0	2	5
East South Central States:								
Kentucky	0	0	66	86	0	0	20	60
Tennessee	1	1	106	84	0	1	22	59
Alabama [1]	0	0	69	65	1	0	18	19
Mississippi	0	1	26	43	1	42	4	14

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended October 22, 1932, and October 24, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Oct. 22, 1932	Week ended Oct. 24, 1931	Week ended Oct. 22, 1932	Week ended Oct. 24, 1931	Week ended Oct. 22, 1932	Week ended Oct. 24, 1931	Week ended Oct. 22, 1932	Week ended Oct. 24, 1931
West South Central States:								
Arkansas	0	0	47	26	0	2	9	17
Louisiana [1]	0	1	20	16	1	1	13	33
Oklahoma [4]	0	2	22	37	0	3	24	44
Texas [1]	1	3	86	22	4	0	18	33
Mountain States:								
Montana	0	2	8	13	4	0	9	4
Idaho	0	2	1	6	0	2	6	4
Wyoming	0	0	15	6	0	1	3	0
Colorado	0	0	25	21	0	0	1	8
New Mexico	0	0	13	6	0	1	12	13
Arizona [5]	0	1	5	5	0	0	1	1
Utah [3]	0	0	1	5	0	0	0	4
Pacific States:								
Washington	0	9	15	67	2	9	5	6
Oregon	4	2	21	15	0	7	3	2
California	4	6	79	226	1	7	14	6
Total	110	549	3,397	2,870	35	139	576	887

[1] Typhus fever, week ended Oct. 22, 1932, 23 cases. 1 case in Massachusetts, 8 cases in Georgia, 6 cases in Alabama, 1 case in Louisiana, and 7 cases in Texas.
[2] New York City only.
[3] Week ended Friday.
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa and for 1931 are exclusive of Tulsa only.
[5] Rocky Mountain spotted fever, week ended Oct. 22, 1932, 1 case in Arizona.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
September, 1932										
Illinois	5	226	22	17	51		30	484	5	180
Louisiana	8	92	27	175	14	16	7	34	0	68
Maryland	2	61	16	1	12	1	10	101	0	141
Minnesota	6	54	6		44		36	119	0	31
New York	16	162		6	325		80	496	2	201
North Carolina	7	264	47		85	125	7	223	1	96
Oklahoma [1]	1	239	67	206	7	21	6	77	0	139
Rhode Island	1	15			[2] 16		3	40	0	2
West Virginia	2	149	22	1	43		18	164	8	261

[1] Exclusive of Oklahoma City and Tulsa.
[2] Delayed reports included.

September, 1932	Cases
Anthrax:	
Louisiana	2
Chicken pox:	
Illinois	165
Maryland	22
Minnesota	53
New York	219
North Carolina	36
Oklahoma [1]	6
Rhode Island	5
West Virginia	11
Conjunctivitis:	
Oklahoma [1]	1
Diarrhea:	
Maryland	97
Dysentery:	
Illinois (amebic)	5
Illinois (bacillary)	46
Louisiana	1
Maryland	31
Minnesota	3
Minnesota (amebic)	1
New York	45
Oklahoma [1]	4
German measles:	
Illinois	5
Maryland	8
New York	219
North Carolina	8
Hookworm disease:	
Louisiana	39
Impetigo contagiosa:	
Maryland	92
Oklahoma [1]	1
Lead poisoning:	
Illinois	12
Maryland	1
Lethargic encephalitis:	
Illinois	6
Louisiana	3
Maryland	2
Minnesota	1
New York	7
Mumps:	
Illinois	41
Maryland	35
Oklahoma [1]	13

[1] Exclusive of Oklahoma City and Tulsa.

Disease and State	Cases
Mumps—Continued.	
Rhode Island	11
West Virginia	1
Ophthalmia neonatorum:	
Illinois	9
Louisiana	1
Minnesota	2
New York	3
North Carolina	1
Paratyphoid fever:	
Illinois	6
New York	7
North Carolina	3
Psittacosis:	
Minnesota	11
Puerperal septicemia:	
Illinois	4
Rabies in animals:	
Illinois	3
Louisiana	7
Maryland	2
New York [2]	3
Rabies in man:	
Illinois	1
Scabies:	
Maryland	1
Oklahoma [1]	1
Septic sore throat:	
Illinois	6
Louisiana	1
Maryland	6
New York	8
North Carolina	19
Oklahoma [1]	29
Rhode Island	1
Tetanus:	
Illinois	11
Louisiana	10
Maryland	2
New York	12
Rhode Island	2
Trachoma:	
Illinois	1
Minnesota	2
Oklahoma [1]	6
Trichinosis:	
Illinois	2
New York	2
Tularaemia:	
Illinois	2
Louisiana	2
Maryland	1
Minnesota	5
Typhus fever:	
Illinois	1
Louisiana	2
Maryland	3
New York	1
North Carolina	4
Undulant fever:	
Illinois	5
Louisiana	4
Maryland	11
Minnesota	2
New York	23
North Carolina	1
Vincent's angina:	
Illinois	37
Maryland	15
New York [2]	86
Oklahoma [1]	5
Whooping cough:	
Illinois	394
Louisiana	8
Maryland	114
Minnesota	134
New York	1,403
North Carolina	256
Oklahoma [1]	14
Rhode Island	64
West Virginia	104

[1] Exclusive of Oklahoma City and Tulsa. [2] Exclusive of New York City.

WEEKLY REPORTS FROM CITIES

City reports for week ended October 15, 1932

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0		1	0	1	4	0	2	1	3	27
New Hampshire:											
Concord	0		0	0	0	0	0	0	0	0	7
Manchester	0		0	0	3	0	0	2	0	0	25
Nashua	0		0	0	0	1	0	0	0	0	
Vermont:											
Barre	1		0	1	0	0	0	0	0	0	2
Burlington	0		0	0	0	0	0	0	0	0	16
Massachusetts:											
Boston	7		0	8	22	28	0	10	1	24	200
Fall River	6		0	0	1	2	0	1	0	2	24
Springfield	0		0	1	0	2	0	1	0	2	26
Worcester	1		0	2	3	7	0	3	0	2	40
Rhode Island:											
Pawtucket	0		0	0	2	0	0	0	0	0	
Providence	2		0	0	2	5	0	1	1	10	61
Connecticut:											
Bridgeport	0	1	0	2	4	5	0	1	0	4	26
Hartford	0		0	1	1	0	0	2	0	3	35
New Haven	0		1	0	5	2	0	0	0	8	35
New York:											
Buffalo	5		1	2	7	12	0	6	1	0	112
New York	19	12	8	28	97	39	0	64	16	93	1,264
Rochester	0		0	0	5	11	0	1	0	2	61
Syracuse	0		0	1	2	8	0	1	0	22	46
New Jersey:											
Camden	9		0	1	2	3	0	1	0	0	17
Newark	1	3	0	0	6	5	0	2	0	19	81
Trenton	0		1	0	5	1	0	1	0	0	44
Pennsylvania:											
Philadelphia	4	2	3	4	16	20	0	37	7	16	392
Pittsburgh	5	1	1	5	16	17	0	6	0	17	145
Reading	2		0	18	1	4	0	3	0	1	32
Scranton	1		0	0	0	5	0	0	0	2	
Ohio:											
Cincinnati	4		0	0	4	15	0	5	2	3	132
Cleveland	6	44	1	0	4	41	0	10	1	22	153
Columbus	4		0	4	4	2	0	4	1	1	79
Toledo	4		0	3	4	28	0	2	0	1	81
Indiana:											
Fort Wayne	9		0	0	2	0	0	0	0	0	
Indianapolis	1		0	0	9	10	0	0	1	7	
South Bend	1		0	0	1	1	0	1	0	2	6
Terre Haute	1		0	1	2	0	0	0	0	0	19

City reports for week ended October 15, 1932—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Illinois:											
Chicago	20	4	1	18	40	81	0	29	0	22	614
Springfield	1	-------	1	1	0	10	0	0	0	0	23
Michigan:											
Detroit	11	-------	2	8	13	52	0	13	2	46	207
Flint	1	23	0	0	2	4	0	0	1	2	25
Grand Rapids	0	-------	0	0	2	2	0	1	0	9	33
Wisconsin:											
Kenosha	0	-------	0	0	0	2	0	0	0	0	5
Madison	1	-------	-------	3	-------	0	0	-------	0	2	-------
Milwaukee	4	1	1	1	7	9	0	5	0	10	91
Racine	0	-------	0	1	0	1	0	0	0	2	8
Superior	1	-------	0	0	0	0	0	1	0	0	10
Minnesota:											
Duluth	0	-------	0	0	4	2	0	0	0	5	27
Minneapolis	1	-------	0	5	4	13	0	3	0	5	105
St. Paul	3	-------	0	1	10	8	0	1	2	20	70
Iowa:											
Des Moines	20	-------	-------	0	-------	8	0	-------	0	0	26
Sioux City	3	-------	-------	0	-------	1	1	-------	0	0	-------
Waterloo	0	-------	-------	1	-------	0	0	-------	0	1	-------
Missouri:											
Kansas City	3	-------	0	4	7	22	0	4	0	8	102
St. Joseph	9	-------	0	0	7	1	0	1	0	0	38
St. Louis	22	-------	0	0	5	16	0	9	2	0	180
North Dakota:											
Fargo	0	-------	0	0	0	0	0	0	0	0	4
Grand Forks	0	-------	0	3	0	0	0	0	1	0	-------
South Dakota:											
Aberdeen	0	-------	0	0	0	0	0	0	0	0	-------
Sioux Falls	0	-------	0	0	0	0	0	0	0	0	9
Nebraska:											
Omaha	16	-------	0	1	3	16	0	1	0	0	42
Kansas:											
Topeka	1	-------	0	0	0	1	0	0	1	0	3
Wichita	2	-------	0	0	3	3	0	0	0	1	26
Delaware:											
Wilmington	1	-------	0	0	3	1	0	1	0	2	29
Maryland:											
Baltimore	6	1	0	0	13	22	0	14	4	32	191
Cumberland	1	1	0	0	1	1	0	1	1	0	10
Frederick	0	-------	0	0	0	2	0	0	0	0	-------
District of Columbia:											
Washington	5	1	1	0	10	13	0	10	0	8	142
Virginia:											
Lynchburg	2	-------	0	0	1	1	0	1	1	3	8
Norfolk	0	-------	0	1	4	2	0	3	0	3	29
Richmond	3	-------	1	2	3	7	0	1	1	0	55
Roanoke	5	-------	0	0	0	11	0	0	8	1	12
West Virginia:											
Charleston	0	-------	0	0	0	0	0	0	0	0	17
Huntington	7	-------	0	0	0	6	0	0	0	0	-------
Wheeling	0	-------	0	6	3	2	0	0	0	0	16
North Carolina:											
Raleigh	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Wilmington	2	-------	0	0	1	4	0	1	0	0	7
Winston-Salem	3	-------	0	1	1	1	0	2	0	1	15
South Carolina:											
Charleston	0	8	0	1	0	0	0	1	1	0	26
Columbia	0	-------	0	0	0	0	0	1	0	1	4
Greenville	1	-------	0	0	0	1	0	0	0	0	-------
Georgia:											
Atlanta	20	13	0	0	4	4	0	2	3	9	87
Brunswick	0	-------	0	0	0	0	0	0	0	0	4
Savannah	11	16	0	1	2	1	0	2	3	0	20
Florida:											
Miami	2	1	0	0	0	0	0	1	0	4	25
St. Petersburg	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Tampa	1	-------	0	0	1	0	0	2	0	0	23
Kentucky:											
Covington	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Lexington	3	-------	0	0	2	4	0	1	0	0	11
Louisville	10	1	0	1	2	5	0	1	1	5	49
Tennessee:											
Memphis	12	-------	0	0	9	15	0	4	2	0	91
Nashville	2	-------	0	0	4	4	0	1	0	0	41
Alabama:											
Birmingham	16	4	0	0	4	5	0	2	2	2	54
Mobile	2	1	0	0	0	5	0	3	0	0	22
Montgomery	1	-------	0	0	-------	2	0	-------	0	3	-------

City reports for week ended October 15, 1932—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Arkansas:											
Fort Smith	1			0		0	0		0	0	
Little Rock	2		0	1	3	3	0	0	0	0	3
Louisiana:											
New Orleans	10	1	3	2	6	5	0	9	1	0	135
Shreveport	1		0	0	1	1	0	1	0	0	31
Oklahoma:											
Oklahoma City	17	10	0	0	5	7	0	1	2	0	20
Tulsa	9		0	0	0	5	0	0	1	0	2
Texas:											
Dallas	30		0	0	3	13	0	1	1	0	56
Fort Worth	11		0	10	2	9	0	2	0	0	23
Galveston	3		0	0	2	0	0	1	3	0	6
Houston	16		0	0	4	1	0	4	1	0	68
San Antonio	11		2	0	2	5	0	5	1	0	58
Montana:											
Billings	0		0	0	0	2	0	0	0	0	5
Great Falls	0		0	2	0	1	0	1	0	0	6
Helena	0		0	0	0	0	0	0	0	0	3
Missoula	0		0	0	0	0	0	0	1	0	3
Idaho:											
Boise	0		0	0	0	1	6	0	1	0	3
Colorado:											
Denver	5		0	7	13	15	0	6	0	1	88
Pueblo	1		0	0	0	0	0	0	0	4	8
New Mexico:											
Albuquerque	0	4	0	0	0	2	0	0	1	0	7
Arizona:											
Phoenix	0		0	0	0	0	0	1	0	0	
Utah:											
Salt Lake City	1		0	1	1	3	0	1	0	4	27
Nevada:											
Reno											
Washington:											
Seattle	1			0		3	1		0	2	
Spokane	0			1		2	0		1	0	
Tacoma	0		1	0	4	0	0	0	1	0	21
Oregon:											
Portland	0	2	0	1	5	3	0	1	0	1	65
Salem	0		0	2	0	0	0	0	0	0	
California:											
Los Angeles	26	78	2	2	7	23	0	19	1	22	247
Sacramento	0		0	1	2	1	0	0	1	2	28
San Francisco	3	5	0	1	5	1	0	9	0	23	128

State and city	Meningococcus meningitis		Poliomyelitis cases	State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths			Cases	Deaths	
Maine:				**Minnesota:**			
Portland	0	0	1	Minneapolis	0	0	1
Massachusetts:				**Iowa:**			
Boston	1	1	1	Sioux City	0	0	1
New York:				**Missouri:**			
New York	1	3	10	Kansas City	1	1	0
Pennsylvania:				St. Louis	1	1	0
Philadelphia	0	0	18	**Nebraska:**			
Pittsburgh	0	1	0	Omaha	1	0	0
Reading	0	0	1	**District of Columbia:**			
Scranton	0	0	1	Washington	0	0	2
Ohio:				**Tennessee:**			
Cincinnati	1	0	0	Memphis	2	0	0
Indiana:				**Texas:**			
South Bend	0	1	0	Houston	0	0	1
Illinois:				**Washington:**			
Chicago	1	0	2	Seattle	0	0	2
Michigan:				Spokane	0	0	1
Detroit	0	0	2				
Grand Rapids	0	0	1				

Lethargic encephalitis.—Cases: Philadelphia, 1; Pittsburgh, 1; Chicago, 1; Detroit, 1.
Pellagra.—Cases: Boston, 1; Philadelphia, 1; Charleston, S. C., 3; Savannah, 1; Dallas, 1; Los Angeles, 1.
Typhus fever.—Cases: New York City, 1; Savannah, 4; Houston, 1.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended October 8, 1932.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases for the week ended October 8, 1932, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis			3						3
Chicken pox		4	8	72	21	13	31	11	160
Diphtheria	1	4	30	15	5		1		56
Erysipelas			1		1		1		3
Influenza	6							3	9
Measles	1	12	23	47	2		66	69	220
Mumps				48	3	6		8	65
Paratyphoid fever				1	1				2
Pneumonia				8		1		2	11
Poliomyelitis			51	14		1	4		70
Scarlet fever	3	6	62	28	15	14	3	24	155
Tuberculosis	1	17	52	38	4	5		26	143
Typhoid fever	6	1	37	13	2	4	4		67
Undulant fever				8					8
Whooping cough			47	53	16	9		6	131

JAMAICA

Communicable diseases—Four weeks ended October 8, 1932.—During the four weeks ended October 8, 1932, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island of Jamaica outside of Kingston as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Cerebrospinal meningitis	1		Poliomyelitis		1
Chicken pox	1	8	Puerperal fever		3
Diphtheria	2		Tuberculosis	30	77
Dysentery		4	Typhoid fever	10	62
Leprosy		1			

PUERTO RICO

Influenza.—From July 1 to September 19, 1932, 40,165 cases of an acute respiratory disease diagnosed as influenza were reported in Puerto Rico.

The disease was mild, as indicated by the accompanying table, which gives a comparison of deaths from influenza, pneumonia, and bronchitis for July and August, 1931 and 1932.

Cause of death	July		August		Total	
	1931	1932	1931	1932	1931	1932
Influenza	17	12	18	109	35	121
Pneumonia	105	121	86	98	191	219
Bronchopneumonia	212	157	163	200	375	357
Bronchitis	80	74	79	75	159	149
Total	414	364	346	482	760	846

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of the quarantinable diseases appeared in the Public Health Reports for October 28, 1932, pp. 2123-2136. A similar cumulative table will appear in the Public Health Reports to be issued November 26, 1932, and thereafter, at least for the time being, in the issue published on the last Friday of each month.)

CHOLERA

Philippine Islands.—During the week ended October 22, 1932, 15 cases of cholera with 15 deaths were reported in the Province of Samar, P. I.

PLAGUE

Egypt—Alexandria.—Three cases of plague with 3 deaths were reported at Alexandria, Egypt, during the week ended October 15, 1932.

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UNITED STATES TREASURY DEPARTMENT

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg Gen R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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CONTENTS

PUBLIC HEALTH REPORTS

VOL. 47 NOVEMBER 11, 1932 NO. 46

EXCESS MORTALITY FROM CAUSES OTHER THAN INFLUENZA AND PNEUMONIA DURING INFLUENZA EPIDEMICS [1]

By SELWYN D. COLLINS, *Senior Statistician, United States Public Health Service*

Studies of mortality during influenza epidemics ordinarily consider the mortality from influenza and pneumonia in *excess* of the usual seasonal expectancy, on the assumption that the epidemic deaths will be credited either to influenza or pneumonia. The use of the influenza and pneumonia categories in studies of this kind has the advantage of eliminating from consideration mortality from any other unrelated epidemic that may have occurred simultaneously with the influenza epidemic.

A study of excess mortality from all causes during the various respiratory epidemics that have occurred during the past 15 years indicates that in every one the *excess* mortality from all causes was appreciably higher than the *excess* mortality credited to influenza and pneumonia. If this situation were true of only one or two of the epidemics, it might be assumed that an unrelated epidemic of some other disease occurred simultaneously with the influenza epidemic; but when every outbreak repeats the phenomenon, it can hardly be concluded that the excess deaths from causes other than influenza and pneumonia are unrelated to the excess deaths from influenza and pneumonia.

For a group of 35 large cities [2] with an aggregate of nearly 25,000,000 inhabitants, deaths from all causes are available in weekly intervals since October, 1917, and deaths from influenza and pneumonia since September, 1918.[3] These data afford the basis for a comparison

[1] From the Office of Statistical Investigations, United States Public Health Service. Part of this article was included in a paper presented before the vital statistics section of the American Public Health Association at its annual meeting in Fort Worth, Tex., in October, 1930.

This study was made as one of a series of studies of influenza under the general direction of the United States Public Health Service Board for the Study of Respiratory Diseases, consisting of Consultant W. H. Frost, Principal Statistician Edgar Sydenstricker, and Senior Statistician Selwyn D. Collins. In the preparation of the study, the author has had the advice and assistance of the other members of this board and of the statistical staff of the Office of Statistical Investigations and associated offices of the Public Health Service.

[2] For names of these cities see footnote to Table 1. Some further data as to the kind of cities included are contained in a preceding paper on influenza (1).

[3] All weekly data included in this paper are from current weekly reports from cities of cases and deaths from influenza and pneumonia and of deaths from all causes as published in the PUBLIC HEALTH REPORTS and in the Weekly Health Index of the United States Census Bureau.

All monthly data included are from the annual volumes of Mortality Statistics published by the United States Census Bureau.

of the excess mortality from all causes with the excess credited to influenza and pneumonia.

Table 1 shows weekly death rates from all causes in this group of cities from 1917 to 1929, and Table 2 shows monthly death rates in the same cities from 1910 to 1919. Similar rates for influenza and pneumonia in the same group of cities may be found in Tables 3 and 4 of a preceding article (1) on influenza which appeared in the PUBLIC HEALTH REPORTS for September 26, 1930. Figure 1 shows these rates graphically for the years 1915 to 1929.

TABLE 1.—*Weekly death rates (annual basis) per 100,000 from all causes in a group of 35 cities*[1] *in the United States, 1917–1929*

Week of year	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1	-------	1,645	2,037	1,444	1,378	1,362	1,508	1,353	1,497	1,557	1,489	1,428	1,896
2	-------	1,732	2,160	1,459	1,371	1,396	1,558	1,466	1,452	1,491	1,412	1,469	2,024
3	-------	1,773	2,308	1,748	1,379	1,439	1,506	1,371	1,456	1,494	1,454	1,375	1,906
4	-------	1,717	2,308	2,400	1,289	1,397	1,544	1,388	1,487	1,460	1,343	1,345	1,815
5	-------	1,690	2,068	2,935	1,414	1,578	1,643	1,447	1,475	1,531	1,433	1,379	1,679
6	-------	1,743	1,913	3,061	1,403	1,594	1,723	1,418	1,470	1,487	1,368	1,396	1,615
7	-------	1,749	1,867	2,561	1,386	1,635	1,813	1,432	1,482	1,670	1,407	1,464	1,543
8	-------	1,597	1,885	2,037	1,452	1,759	1,881	1,454	1,436	1,613	1,434	1,465	1,473
9	-------	1,750	1,908	1,802	1,452	1,727	1,923	1,465	1,487	1,623	1,401	1,481	1,606
10	-------	1,675	1,850	1,654	1,428	1,683	1,769	1,528	1,520	1,793	1,488	1,460	1,495
11	-------	1,769	1,858	1,528	1,389	1,635	1,615	1,416	1,518	1,834	1,459	1,510	1,480
12	-------	1,945	1,787	1,543	1,348	1,516	1,514	1,474	1,494	1,959	1,367	1,509	1,427
13	-------	1,960	1,639	1,424	1,337	1,432	1,491	1,520	1,488	1,730	1,393	1,535	1,345
14	-------	1,958	1,616	1,435	1,375	1,464	1,536	1,509	1,443	1,706	1,436	1,558	1,370
15	-------	1,909	1,570	1,414	1,294	1,416	1,464	1,489	1,470	1,655	1,364	1,493	1,350
16	-------	1,831	1,480	1,436	1,309	1,326	1,422	1,421	1,480	1,521	1,418	1,537	1,320
17	-------	1,728	1,408	1,326	1,252	1,337	1,451	1,447	1,387	1,427	1,375	1,503	1,329
18	-------	1,605	1,424	1,359	1,215	1,367	1,365	1,411	1,358	1,431	1,328	1,538	1,263
19	-------	1,621	1,364	1,333	1,204	1,319	1,289	1,372	1,348	1,344	1,302	1,571	1,294
20	-------	1,455	1,281	1,345	1,220	1,244	1,332	1,322	1,321	1,350	1,280	1,474	1,357
21	-------	1,389	1,332	1,298	1,252	1,228	1,246	1,289	1,267	1,285	1,259	1,419	1,254
22	-------	1,293	1,264	1,224	1,131	1,172	1,247	1,255	1,465	1,251	1,207	1,350	1,281
23	-------	1,336	1,349	1,200	1,084	1,170	1,331	1,260	1,586	1,240	1,189	1,335	1,223
24	-------	1,246	1,165	1,199	1,121	1,174	1,136	1,168	1,164	1,204	1,197	1,246	1,198
25	-------	1,243	1,117	1,065	1,172	1,038	1,216	1,223	1,100	1,161	1,158	1,214	1,219
26	-------	1,279	1,122	1,137	1,115	1,053	1,216	1,183	1,077	1,184	1,169	1,173	1,117
27	-------	1,237	1,107	1,047	1,134	1,090	1,053	1,039	1,200	1,185	1,111	1,178	1,023
28	-------	1,238	1,266	1,026	1,104	1,096	1,112	1,152	1,114	1,100	1,161	1,131	1,142
29	-------	1,304	1,070	1,033	1,042	1,040	1,043	1,115	1,037	1,183	1,091	1,160	1,059
30	-------	1,368	1,082	1,065	1,166	1,036	1,119	1,121	1,058	1,125	1,086	1,106	1,101
31	-------	1,255	1,208	1,095	1,078	1,047	1,047	1,036	1,092	1,089	1,065	1,071	1,094
32	-------	1,473	1,082	1,152	1,081	1,043	1,063	1,062	1,157	1,084	1,063	1,171	1,061
33	-------	1,392	1,082	1,071	1,090	1,093	1,098	1,072	1,103	1,088	1,029	1,102	1,085
34	-------	1,163	1,082	1,067	1,080	1,088	1,090	1,042	1,080	1,063	1,006	1,174	1,064
35	-------	1,162	1,078	1,094	1,111	1,031	1,081	1,108	1,131	1,125	1,073	1,131	1,076
36	-------	1,156	1,068	1,110	1,091	1,065	1,078	1,117	1,103	1,041	1,137	1,042	1,160
37	-------	1,189	1,139	1,101	1,010	1,047	1,030	1,087	1,104	1,115	1,142	1,138	1,025
38	-------	1,315	1,033	1,113	1,054	1,032	1,149	1,082	1,119	1,162	1,066	1,120	1,019
39	-------	1,557	1,077	1,112	1,069	1,083	1,118	1,111	1,111	1,135	1,113	1,144	1,132
40	1,275	2,382	1,089	1,089	1,075	1,142	1,067	1,141	1,129	1,170	1,135	1,254	1,085
41	1,269	4,071	1,079	1,111	1,130	1,087	1,113	1,178	1,219	1,209	1,121	1,152	1,154
42	1,383	6,432	1,114	1,101	1,180	1,152	1,217	1,147	1,235	1,163	1,162	1,204	1,229
43	1,319	6,479	1,110	1,120	1,179	1,195	1,163	1,107	1,276	1,249	1,234	1,127	1,229
44	1,341	4,830	1,142	1,132	1,176	1,231	1,197	1,203	1,289	1,207	1,218	1,189	1,265
45	1,383	3,096	1,103	1,166	1,149	1,243	1,247	1,214	1,282	1,259	1,220	1,250	1,205
46	1,400	2,272	1,172	1,207	1,242	1,241	1,246	1,250	1,266	1,290	1,268	1,288	1,168
47	1,397	1,936	1,197	1,232	1,169	1,249	1,235	1,266	1,210	1,235	1,189	1,312	1,209
48	1,420	1,829	1,248	1,290	1,172	1,262	1,221	1,231	1,328	1,287	1,265	1,286	1,259
49	1,461	2,022	1,313	1,240	1,206	1,315	1,271	1,255	1,297	1,320	1,243	1,412	1,320
50	1,475	2,247	1,294	1,247	1,249	1,358	1,260	1,379	1,342	1,352	1,278	1,561	1,364
51	1,623	2,232	1,350	1,220	1,298	1,430	1,283	1,377	1,231	1,311	1,303	1,650	1,372
52	1,534	2,102	1,292	1,317	1,337	1,422	1,273	1,332	1,463	1,461	1,411	1,784	1,333
53	-------	-------	1,443	-------	-------	-------	-------	1,513	-------	-------	-------	-------	-------

[1] Boston, Fall River, Worcester, Providence, New Haven, Buffalo, New York, Rochester, Syracuse, Newark, Philadelphia, Baltimore, Washington, Richmond, Atlanta, Cincinnati, Cleveland, Columbus, Toledo, Indianapolis, Chicago, Grand Rapids, Louisville, Memphis, Nashville, Birmingham, Minneapolis, St. Paul, Omaha, Kansas City, Mo., New Orleans, Denver, Los Angeles, San Francisco, Portland, Oreg. Aggregate enumerated population in 1920 census, 20,440,548; aggregate estimated 1928 population, 23,421,000. Results of the population enumeration for 1930 indicate that this estimate is less than 2 per cent in error.

Dates of end (Saturday) of first calendar week of the year

Year	First week ended—	Year	First week ended—	Year	First week ended—
1917	Jan. 6	1922	Jan. 7	1927	Jan. 8
1918	Jan. 5	1923	Jan. 6	1928	Jan. 7
1919	Jan. 4	1924	Jan. 5	1929	Jan. 5
1920	Jan. 10	1925	Jan 10	1930	Jan. 4
1921	Jan. 8	1926	Jan. 9	1931	Jan. 10

TABLE 2.—*Monthly death rates (annual basis) per 100,000 from all causes in a group of 35 cities*[1] *in the United States, 1910–1919*

Month	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
January	1,750	1,705	1,666	1,648	1,647	1,546	1,849	1,884	1,738	2,196
February	1,783	1,717	1,704	1,778	1,730	1,615	1,640	1,836	1,693	1,891
March	1,814	1,776	1,700	1,764	1,802	1,714	1,658	1,746	1,852	1,762
April	1,709	1,719	1,630	1,612	1,676	1,688	1,559	1,674	1,806	1,498
May	1,571	1,590	1,476	1,562	1,536	1,431	1,487	1,573	1,430	1,318
June	1,542	1,378	1,333	1,475	1,355	1,317	1,313	1,376	1,260	1,148
July	1,693	1,645	1,447	1,462	1,378	1,368	1,467	1,328	1,274	1,154
August	1,550	1,424	1,421	1,440	1,383	1,319	1,487	1,429	1,272	1,078
September	1,452	1,374	1,364	1,379	1,325	1,324	1,358	1,361	1,425	1,081
October	1,431	1,393	1,410	1,353	1,294	1,328	1,326	1,339	5,161	1,121
November	1,529	1,468	1,442	1,427	1,401	1,384	1,429	1,413	2,215	1,201
December	1,683	1,522	1,604	1,511	1,508	1,736	1,582	1,544	2,112	1,340

[1] Aggregate enumerated population in 1920 census, 20,440,548; aggregate estimated 1928 population 23,421,000. For list of cities, see footnote to Table 1

In addition to the *actual* death rates which are represented by continuous lines, there are broken lines on the graph (Fig. 1) representing the *normal* or *expected* death rates in the different weeks of the year for the two groups of causes. These expected death rates for the period after July 1, 1919, are based on the median weekly rates for the seven years 1921–1927, and for the period prior to July 1, 1919, are based on the median rates for the seven years 1910–1916.[4] In the period prior to July 1, 1919, certain corrections for trend in the death rates were necessary in the "all cause" group. These corrections and more detail as to the norms used are given in footnotes to Tables 3 and 5.

The extent of the excess rates in the various epidemics may be judged moderately well from Figure 1 by the extent to which the actual rate (continuous line) exceeds the median or expected rate (broken line) for that season of the year. The epidemics stand out more clearly, however, if the median or expected rate is subtracted from the actual rate for the same week to obtain the amount by which the actual rate was in excess of the expected rate. These deviations are designated in this paper as excess rates. Table 3 shows weekly excess rates from all causes during the period 1917–1929. Similar excess rates for influenza and pneumonia in the same group of cities may be found in Table 5 of the preceding article on influenza (1).

[4] The years 1918, 1919, 1920, 1926, and 1929 are all marked by more important epidemics than the minor outbreaks of the other years and were not used for the derivation of the norms.

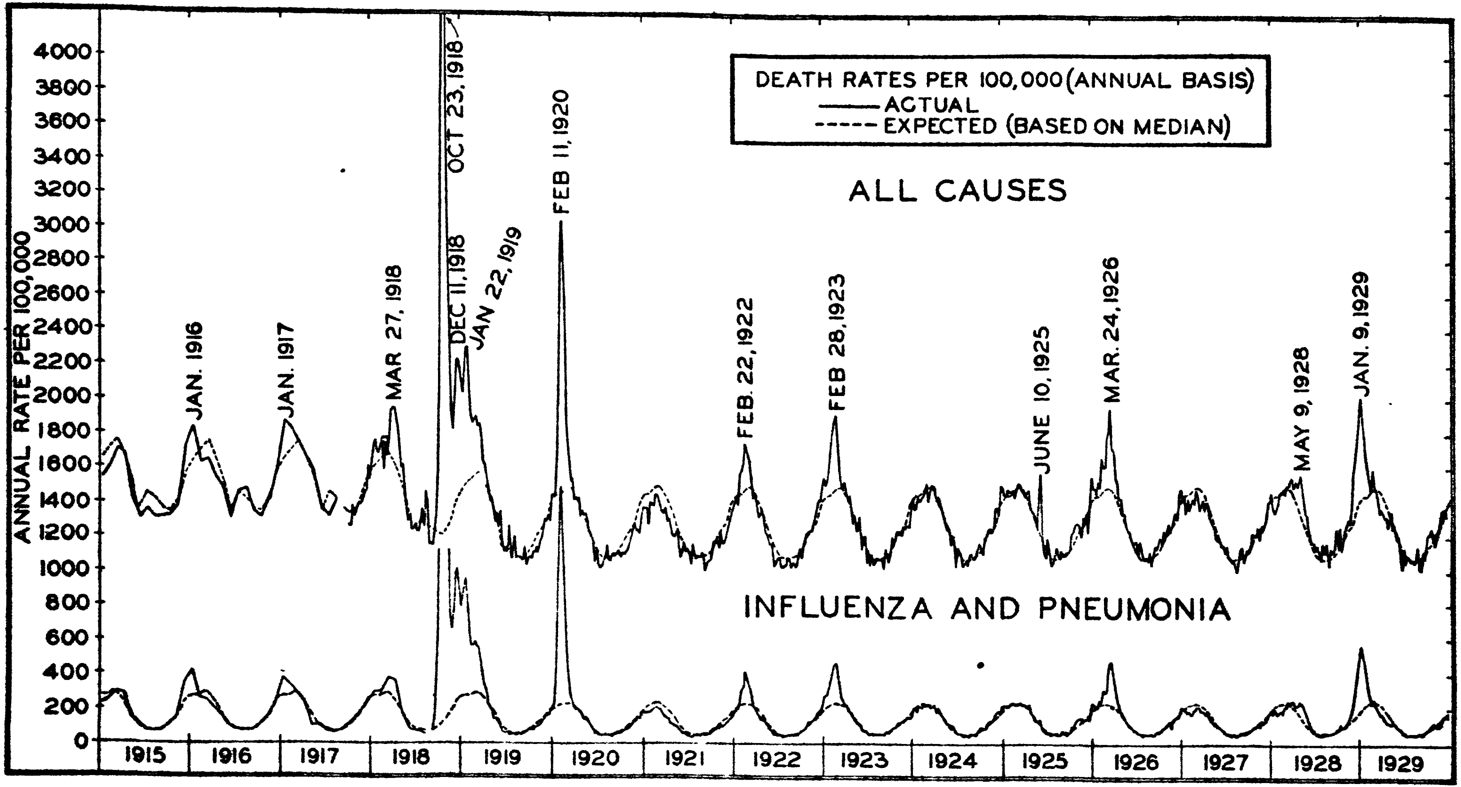

FIGURE 1.—Actual and expected mortality from all causes and from influenza and pneumonia in a group of 35 large cities in the United States, by months, 1915–1917, by weeks, 1918–1929. Dates on graph are middle (Wednesday) of peak weeks. (Expected or normal rates are based on 7-year medians. For details of computations see footnotes to Table 3.)

TABLE 3.—*Excess* [1] *weekly death rates (annual basis) per 100,000 from all causes in a group of 35 large cities* [2] *in the United States, 1917–1929*

Week of year	Median 1921–1927 (smoothed) [1]	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1	1,422	----	+47	+560	+22	−44	−60	+86	−69	+75	+135	+67	+6	+474
2	1,441	----	+119	+669	+18	−70	−45	+117	+25	+11	+50	−29	+28	+583
3	1,453	----	+147	+804	+295	−74	−14	+53	−82	+3	+41	+1	−78	+453
4	1,450	----	+81	+793	+950	−161	−53	+94	−62	+37	+10	−107	−105	+365
5	1,456	----	+43	+543	+1,479	−42	+122	+187	−9	+19	+75	−23	−77	+223
6	1,456	----	+88	+380	+1,605	−53	+138	+267	−38	+14	+31	−88	−60	+159
7	1,474	----	+83	+323	+1,087	−88	+161	+339	−42	+8	+196	−67	−10	+69
8	1,484	----	−80	+331	+553	−32	+275	+397	−30	−48	+129	−50	−19	−11
9	1,494	----	+64	+343	+308	−42	+233	+429	−29	−7	+129	−93	−13	+112
10	1,496	----	−21	+276	+158	−68	+187	+273	+32	+24	+297	−8	−36	−1
11	1,503	----	+69	+290	+25	−111	+132	+112	−87	+15	+331	−44	+7	−23
12	1,498	----	+259	+222	+45	−150	+18	+16	−24	−4	+461	−131	+11	−71
13	1,486	----	+295	+96	−62	−149	−54	+5	+34	+2	+244	−93	+49	−141
14	1,466	----	+317	+97	−31	−91	−2	+70	+43	−23	+240	−30	+92	−96
15	1,445	----	+296	+78	−31	−151	−29	+19	+44	+25	+110	−81	+48	−95
16	1,420	----	+247	+18	+16	−111	−94	+2	+1	+60	+101	−2	+117	−100
17	1,391	----	+174	−24	−65	−139	−54	+60	+56	−4	+36	−16	+112	−62
18	1,363	----	+84	+24	−4	−148	+4	+2	+48	−5	+68	−35	+175	−100
19	1,330	----	+136	+1	+3	−126	−11	−41	+42	+18	+14	−28	+241	−30
20	1,302	----	+10	−42	+43	−82	−58	+30	+20	+19	+48	−22	+172	+55
21	1,277	----	−13	+51	+21	−25	−49	−31	+12	−10	+8	−18	+142	−23
22	1,247	----	−53	+40	−23	−116	−75	0	+8	+218	+4	−40	+103	+34
23	1,215	----	+43	+178	−15	−131	−45	+116	+45	+371	+25	−26	+120	+8
24	1,197	----	−18	+22	+2	−76	−23	−61	−29	−33	+7	0	+49	+1
25	1,170	----	−19	−23	−105	+2	−132	+46	+53	−70	−9	−12	+44	+49
26	1,144	----	+9	−26	−7	−29	−91	+72	+39	−67	+40	+25	+29	−27
27	1,119	----	−45	−12	−72	+15	−29	−66	−80	+81	+66	−8	+59	−96
28	1,111	----	−52	+155	−85	−7	−15	+1	+41	+3	−11	+50	+20	+31
29	1,090	----	+9	−20	−57	−48	−50	−47	+25	−53	+93	+1	+70	−31
30	1,080	----	+76	+2	−15	+86	−44	+39	+41	−22	+45	+6	+26	+21
31	1,076	----	−33	+132	+19	+2	−29	−29	−40	+16	+13	−11	−5	+18
32	1,083	----	+192	−1	+69	−2	−40	−20	−21	+74	+1	−20	+88	−22
33	1,081	----	+120	+1	−10	+9	+12	+17	−9	+22	+7	−52	+21	+4
34	1,086	----	−101	−4	−19	−6	+2	+4	−44	−6	−23	−80	+88	−22
35	1,091	----	−95	−13	+3	+20	−60	−10	+17	+40	+34	−18	+40	−15
36	1,090	----	−92	−22	+20	+1	−25	−12	+27	+13	−49	+47	−48	+70
37	1,096	----	−52	+43	+5	−86	−49	−66	−9	+8	+19	+46	+42	−71
38	1,101	----	+82	−68	+12	−47	−69	+48	−19	+18	+61	−35	+19	−82
39	1,100	----	+331	−32	+3	−40	−26	+9	+2	+2	+26	+4	+35	+23
40	1,124	−68	+1,161	−35	−35	−49	+18	−57	+17	+5	+46	+11	+130	−39
41	1,147	−71	+2,852	−68	−36	−17	−60	−34	+31	+72	+62	−26	+5	+7
42	1,166	+40	+5,211	−52	−65	+14	−14	+51	−19	+69	−3	−4	+98	+63
43	1,188	−33	+5,219	−78	−68	−9	+7	−25	−81	+88	+61	+46	−61	+41
44	1,212	−25	+3,585	−70	−80	−36	+19	−15	−9	+77	−5	+6	−23	+53
45	1,226	−3	+1,832	−123	−60	−77	+17	+21	−12	+56	+33	−6	+24	−21
46	1,239	−9	+985	−67	−32	+3	+2	+7	+11	+27	+51	+29	+49	−71
47	1,252	−45	+615	−55	−20	−83	−3	−17	+14	−42	−17	−63	+60	−43
48	1,272	−55	+476	−24	+18	−100	−10	−51	−41	+56	+15	−7	+14	−22
49	1,283	−49	+634	+30	−43	−77	+32	−12	−28	+14	+37	−40	+129	+37
50	1,318	−66	+827	−24	−71	−69	+40	−58	+61	+24	+34	−40	+243	+46
51	1,363	+58	+789	−13	−143	−65	+67	−80	+14	−132	−52	−60	+287	+9
52	1,309	−49	+641	−107	−92	−62	+23	−126	−67	+64	+62	+12	+385	−66
53	1,411	----	----	+32	----	----	----	----	+102	----	----	----	----	----

[1] From July 1, 1919, to Jan. 1, 1930, the excess rates are computed as deviations from the median death rate for the corresponding week for the period 1921–1927. The series of 52 medians representing "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-period moving average before deviations were computed. The smoothed medians are the values in the second column of the table.

For the period prior to July 1, 1919, the excess rates are computed as deviations from a normal based on the estimated median death rate for the corresponding week for the period 1910–1916, but taking account of a trend in the rates from the thirty-sixth week of 1917 to the twenty-sixth week of 1919. As weekly data were not available for the period 1910–1916, monthly rates (annual basis) and medians were computed. The median rates were plotted and a smooth line passing through each of the monthly medians, except July and August, was drawn to represent the seasonal curve of mortality from all causes. From this curve the approximate medians for each week of the year were read. The July and August medians seemed abnormally high, because of a summer peak in the mortality from all causes which was very prominent in the early years of the period 1910–1916, but which was becoming rather unimportant by 1918 and which is almost absent since 1920.

The correction for the trend in the death rates for 1917–1919 was made in the following manner: After deviations from the estimated median rates 1910–1916 were computed it was found that in nonepidemic weeks the deviations tended to fall not along the zero base line (Fig. 2) but along a straight line drawn from zero in the thirty-sixth week of 1917 to a point 220 (in the rate per 100,000) below the zero base line in the twenty-sixth week of 1919, after which the use of the 1910–1916 norm was discontinued. The 220 represents the difference between the 1910–1916 norm used up to July 1, 1919, and the 1921–1927 norm used after that date. Using as a corrected base line the straight line referred to above, the corrected deviations (excess rates) given in the table were computed. The norms for this period prior to July 1, 1919 are not shown in the table but are plotted in Fig. 1.

[2] Aggregate enumerated population in 1920 census, 20,440,548; aggregate estimated 1928 population, 23,421,000. For list of cities, see footnote to Table 1.

Table 4 shows weekly excess rates from all causes except influenza and pneumonia. These rates were obtained by subtracting the influenza and pneumonia excess rates from the excess rates for all causes for corresponding weeks.

TABLE 4.—*Excess*[1] *weekly death rates (annual basis) per 100,000 from causes other than influenza and pneumonia in a group of 35 cities*[2] *in the United States, 1918–1929*

Week of year	Year											
	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1	------	+36	+18	−35	−34	+33	−42	+50	+89	+48	+4	+146
2	------	+80	−10	−45	−33	+43	+17	−9	+18	−32	+61	+212
3	------	+149	+72	−41	+3	−14	−69	−1	+36	+12	−66	+164
4	------	+105	+204	−121	−42	+23	−29	+32	+16	−69	−60	+114
5	------	−2	+322	+2	+79	+59	−1	+7	+50	+12	−23	+87
6	------	+20	+338	−17	+56	+115	−27	+6	+16	−32	−18	+94
7	------	+42	+261	−58	+63	+122	−22	+4	+117	−8	+31	+34
8	------	+46	+108	−5	+90	+162	−25	−41	+59	−7	+41	−7
9	------	+43	+101	−23	+91	+192	−13	0	+63	−61	+8	+88
10	------	+10	+52	−37	+65	+103	+29	+19	+126	+7	−20	+6
11	------	+19	−18	−78	+42	+22	−82	+3	+95	−28	−10	−3
12	------	+22	+29	−94	−19	−23	−5	−2	+206	−92	+9	−29
13	------	−50	−51	−87	−48	−14	+30	−10	+39	−59	+22	−87
14	------	+9	−20	−36	+7	+54	+23	−31	+109	−13	+47	−51
15	------	+10	−31	−91	−12	−5	+64	+14	+33	−55	+17	−42
16	------	−32	+13	−66	−64	−3	−20	+15	+52	+8	+86	−51
17	------	−22	−64	−82	−21	+46	+37	−14	+10	−1	+57	−11
18	------	+28	+9	−98	+11	−11	+34	−9	+46	−11	+88	−60
19	------	+6	+11	−76	+1	−42	+38	+28	−4	−12	+146	0
20	------	−10	+28	−50	−57	+30	+10	+17	+31	−4	+80	+76
21	------	+66	+14	+2	−43	−32	+12	−27	−3	−11	+62	−26
22	------	+58	−26	−85	−57	−4	−2	+186	+6	−32	+42	+31
23	------	+192	−12	−105	−34	+104	+35	+360	+19	−28	+72	+9
24	------	+51	+5	−47	−5	−53	−52	−28	+1	−3	+13	−2
25	------	+13	−86	+19	−108	+53	+36	−63	−6	−15	+29	+41
26	------	−12	+2	−7	−82	+61	+26	−59	+32	+19	+15	−22
27	------	−1	−57	+35	−17	−70	−80	+83	+60	−5	+47	−95
28	------	+153	−75	+8	−12	+4	+39	+8	−19	+47	+16	+34
29	------	−9	−50	−31	−43	−45	+22	−48	+89	−4	+64	−32
30	------	+7	−11	+99	−37	+35	+36	−29	+49	+9	+29	+24
31	------	+130	+17	+7	−22	−31	−45	+9	+7	−8	−11	+16
32	------	+3	+71	+3	−37	−25	−17	+61	+1	−27	+75	−22
33	------	+9	−4	+10	+15	+16	−6	+22	+4	−45	+12	+2
34	------	+3	−12	+6	+3	+5	−34	−3	−20	−76	+80	−24
35	------	−10	+19	+18	−54	−9	+14	+21	+35	−22	+37	−12
36	------	−12	+27	+3	−18	−17	+21	+3	−45	+42	−49	+65
37	−43	+45	+5	−79	−46	−60	−8	−1	+27	+43	+36	−65
38	+10	−65	+16	−42	−58	+38	−11	+20	+53	−37	−12	−73
39	+17	−27	+5	−32	−18	+8	−7	+4	+17	+7	+29	+24
40	+116	−30	−23	−37	+22	−56	+7	+4	+52	+13	+110	−47
41	+193	−73	−26	−2	−59	−28	+13	+52	+59	−22	−2	+4
42	+412	−10	−53	+24	−8	+47	−28	+54	−9	−3	+65	+48
43	+457	−53	−50	0	+8	−19	−71	+63	+52	+46	−58	+26
44	+209	−50	−56	−26	+21	−8	+5	+39	−9	+16	−14	+42
45	+113	−99	−39	−56	+2	+13	−23	+22	+29	−2	+34	−22
46	+84	−36	−13	+11	+1	+6	+1	−3	+43	+31	+54	−51
47	+47	−22	−13	−54	−8	−21	+16	−42	+25	−35	+54	−13
48	+12	−3	+19	−75	−19	−42	−45	+40	+10	+2	−12	+1
49	+80	+37	−32	−53	+19	−6	−56	+17	+28	−21	+66	+28
50	+90	−23	−67	−44	+16	−65	+31	+24	+37	−19	+122	+35
51	+19	−12	−120	−37	+44	−66	−14	−111	−44	−44	+100	+8
52	+3	−91	−83	−31	0	−93	−55	+51	+60	+13	+131	−43
53	------	+27	------	------	------	------	+63	------	------	------	------	------

[1] Excess rates were computed by subtracting (algebraically) from the excess rates for all causes as given in Table 3, the excess rates from influenza and pneumonia as given in Table 5 of the preceding article on influenza and pneumonia in the Public Health Reports for Sept. 26, 1930 (1).

[2] Aggregate enumerated population in 1920 census, 20,440,548; aggregate estimated 1928 population, 23,421,000 For list of cities, see footnote to Table 1.

Figures 2 and 3 show graphically excess rates from all causes, from influenza and pneumonia, and from all other causes, from 1915 to 1929. It may be seen in these graphs that for every period in which there is a definite peak of excess mortality from influenza and pneumonia there is a corresponding peak of excess mortality credited to causes other than influenza and pneumonia. In some of the minor epidemics the excess mortality credited to causes other than influenza and pneumonia is of the same order of magnitude as the excess credited to influenza and pneumonia; in fact, during the minor epidemic of the spring of 1928, the excess credited to causes other than influenza and pneumonia reached a higher rate than that credited to influenza and pneumonia.

The rather large excess in the week with a midpoint (Wednesday) on June 10, 1925, coincides with or immediately follows an unusually hot week during which a considerable number of heat prostrations and deaths from overheating were reported, particularly in New York City, which is included in this group of 35 cities. Presumably the peak in "all causes," which has no counterpart in the influenza and pneumonia rates, is due to these deaths.

Figure 4, which shows the excess mortality during each of the epidemics, is drawn on a scale to facilitate comparison of the rise and fall of the curves for the different cause groups. The horizontal, or time, scale is made very much larger than in the preceding graphs, and the excess rates are shown only for the few weeks during which the death rate was definitely above normal. The vertical, or rate, scales are arranged in such a way that the height of the peaks for all causes in the different epidemics will be about the same. In this figure it may be seen that for the various epidemics the peak of the excess mortality from causes other than influenza and pneumonia comes in the same week as the peak of the excess mortality from influenza and pneumonia, and that the rise and fall of the rates for the two groups of causes is similar.

Table 5 shows several constants which indicate the time distribution of the excess deaths. The modal, or peak, day has been estimated within the peak week by taking account of the rates in the preceding week and in the following week. Computations have also been made to indicate the day on which one-fourth, one-half, and three-fourths of the excess deaths had occurred and the number of days between these dates. An examination of the table confirms the impression obtained from Figure 4 that, with respect to time distribution, the excess deaths credited to causes other than influenza and pneumonia exhibit the same concentration within a few weeks as the excess deaths credited to influenza and pneumonia.

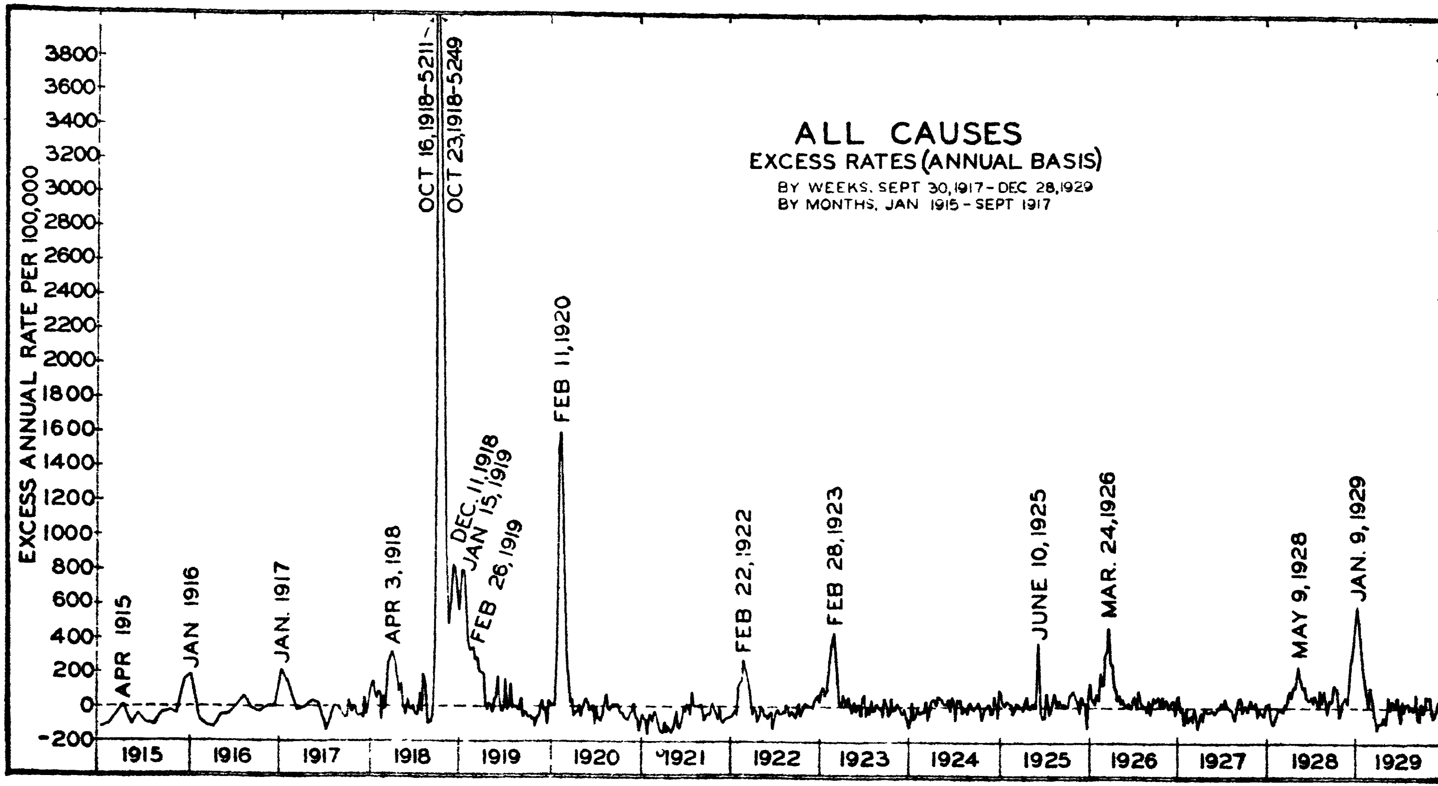

FIGURE 2.—Excess mortality from all causes in a group of 35 large cities in the United States, by months, 1915-1917, by weeks, 1918-1929. Dates on graph are middle (Wednesday) of peak weeks. (Excess over expected or normal rates for corresponding weeks based on 7-year medians. For details of computations see footnotes to Table 3.)

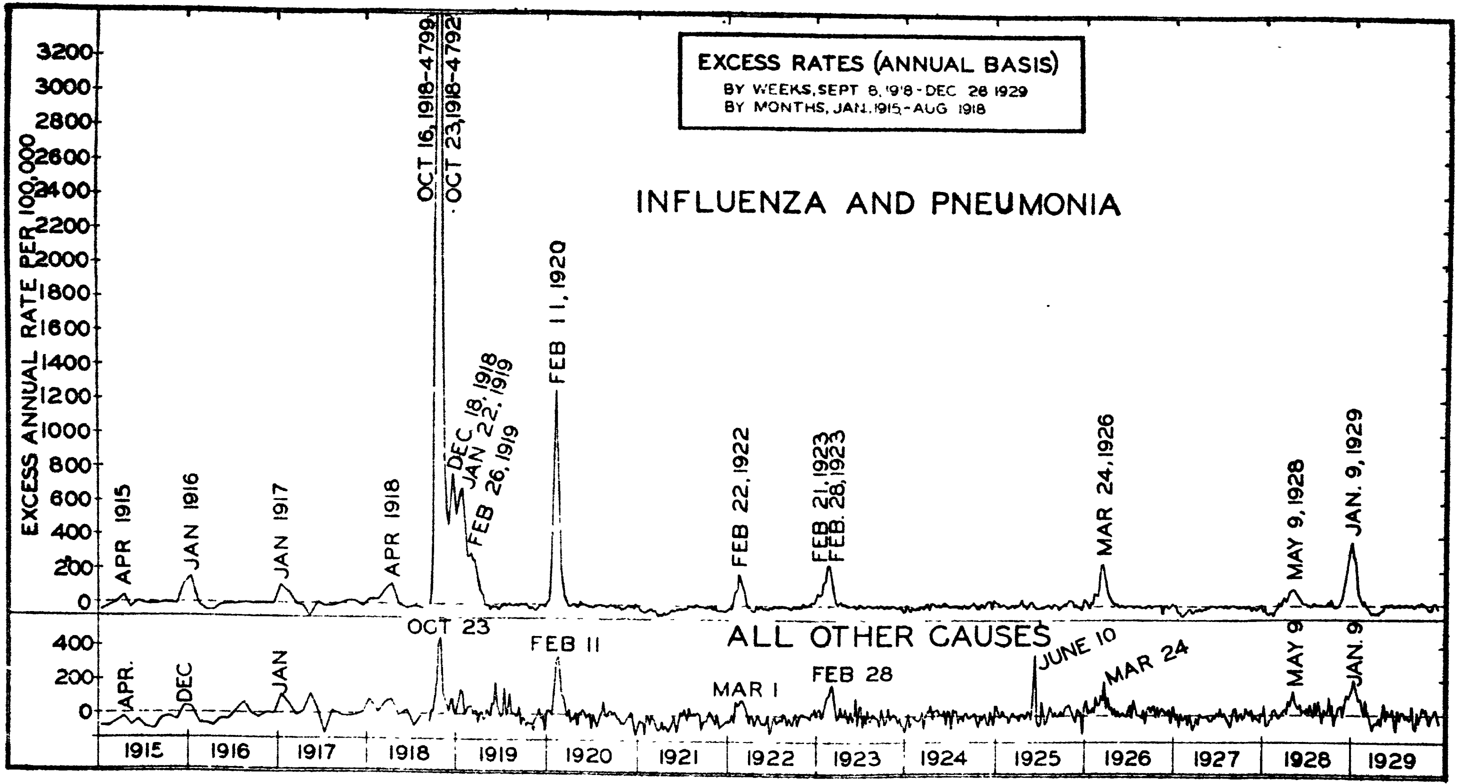

FIGURE 3.—Excess mortality from influenza and pneumonia and from all other causes in a group of 35 large cities in the United States, by months, 1915-1917, by weeks, 1918-1929. Dates on graph are middle (Wednesday) of peak weeks. (Excess over expected or normal rates for corresponding weeks based on 7-year medians. For details of computations see footnotes to Tables 3 and 4.)

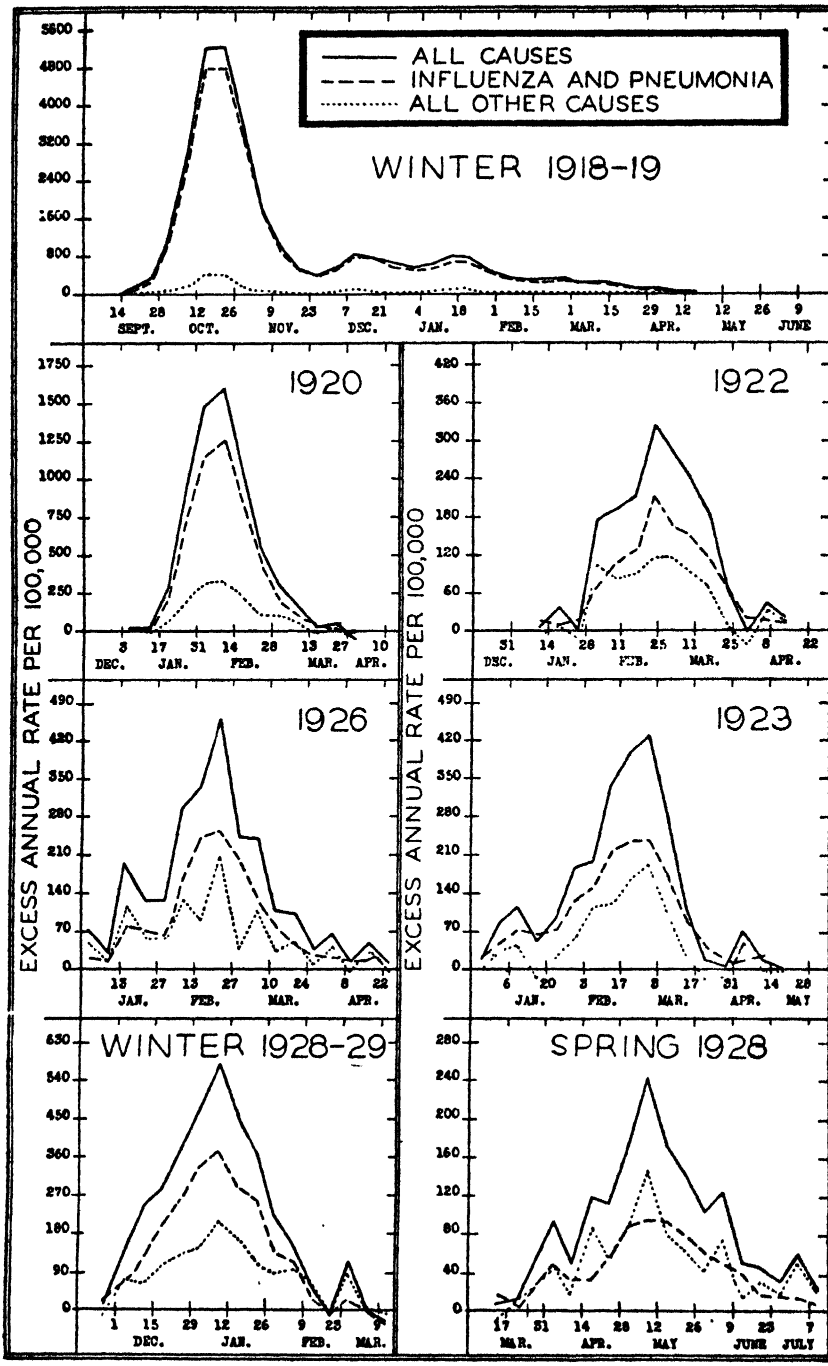

FIGURE 4.—Weekly excess mortality rates (annual basis) from all causes, from influenza and pneumonia, and from all other causes during 7 epidemics in a group of 35 large cities in the United States, 1918–1929. (Excess over expected or normal rates for corresponding weeks based on 7-year medians. For details of computations see footnotes to Tables 3 and 4.)

TABLE 5.—*Summary of extent and time distribution of the excess*[1] *mortality during each respiratory epidemic in a group of 35 cities*[2] *in the United States, 1915–1929*

Epidemic	Total excess[1] during whole epidemic: Rate per 100,000	Total excess during whole epidemic: Per cent credited to each cause group	Maximum weekly excess rate per 100,000: Actual or weekly basis	Maximum weekly excess rate per 100,000: Annual basis	Date of middle (Wednesday) of peak week	Estimated modal or peak day[3]	Day on which the specified proportion of the excess deaths had occurred: One-fourth (first quartile)[4]	One-half (median)[4]	Three-fourths (third quartile)[4]	Interquartile range (number of days between first and third quartiles)	Number of days between first quartile and median	Number of days between median and third quartile	Total period considered as above normal: Total number of weeks	Dates of weeks included
Spring of 1915:														
All causes	11.8	100			Apr., 1915	Apr., 1915							2 months	March and April.
Influenza and pneumonia	7.3	62			Apr., 1915	Apr., 1915								
All other causes	4.5	38			Apr., 1915	Apr., 1915								
Winter of 1915–16.														
All causes	35.4	100			Jan., 1916	Jan., 1916							do	December and January.
Influenza and pneumonia	22.8	64			Jan., 1916	Jan., 1916								
All other causes	12.6	36			Dec., 1915	Dec., 1915								
1917:														
All causes	27.6	100			Jan., 1917	Jan., 1917							do	January and February.
Influenza and pneumonia	14.0	51			Jan., 1917	Jan., 1917								
All other causes	13.6	49			Jan., 1917	Jan., 1917								
Spring of 1918.														
All causes	42.1	100			Apr., 1918	Apr., 1918							4 months	January to April.
Influenza and pneumonia	21.1	50			Apr., 1918	Apr., 1918								
All other causes	21.0	50			Apr., 1918	Apr., 1918								
Winter of 1918–19:														
All causes	598.0	100	100.67	5,249	Oct. 23	Oct. 20	Oct. 17	Oct. 28	Dec. 10	54	11	43	31 weeks	Sept. 15, 1918–Apr. 19, 1919 (thirty-eighth to sixteenth week, inclusive).
Influenza and pneumonia	550.5	92	92.04	4,799	Oct. 16	Oct. 19	Oct. 17	Oct. 28	Dec. 10	54	11	43		
All other causes	47.5	8	8.63	450	Oct. 23	Oct. 21	Oct. 18	Oct. 29	Dec. 14	57	11	46		
1920:														
All causes	125.5	100	30.78	1,605	Feb. 11	Feb. 8	Feb. 2	Feb. 10	Feb. 18	16	8	8	12 weeks	Jan. 4–Mar. 27, 1920 (first to twelfth week, inclusive).
Influenza and pneumonia	97.2	77	24.30	1,267	Feb. 11	Feb. 9	Feb. 2	Feb. 10	Feb. 18	16	8	8		
All other causes	28.3	23	6.48	338	Feb. 11	Feb. 9	Feb. 2	Feb. 10	Feb. 19	17	8	9		

See footnotes at end of table.

TABLE 5.—*Summary of extent and time distribution of the excess*[1] *mortality during each respiratory epidemic in a group of 35 cities*[2] *in the United States, 1915–1929*—Continued

Epidemic	Total excess[1] during whole epidemic: Rate per 100,000	Total excess[1] during whole epidemic: Per cent credited to each cause group	Maximum weekly excess rate per 100,000: Actual or weekly basis	Maximum weekly excess rate per 100,000: Annual basis	Date of middle (Wednesday) of peak week	Estimated modal or peak day[3]	Day on which the specified proportion of the excess deaths had occurred: One-fourth (first quartile)[4]	Day on which the specified proportion of the excess deaths had occurred: One-half (median)[4]	Day on which the specified proportion of the excess deaths had occurred: Three-fourths (third quartile)[4]	Interquartile range (number of days between first and third quartiles)	Number of days between first quartile and median	Number of days between median and third quartile	Total period considered as above normal: Total number of weeks	Total period considered as above normal: Dates of weeks included
1922:														
All causes	34.1	100	6.23	325	Feb. 22	Feb. 24	Feb. 13	Feb. 24	Mar. 8	23	11	12	14 weeks	Jan. 8–Apr. 15, 1922 (second to fifteenth week, inclusive).
Influenza and pneumonia.	20.7	61	4.03	210	Feb. 22	Feb. 23	Feb. 15	Feb. 25	Mar. 9	22	10	12		
All other causes	13.4	39	2.20	115	Mar. 1	Feb. 26	Feb. 9	Feb. 23	Mar. 6	25	14	11		
1923:														
All causes	50.4	100	8.23	429	Feb. 28	Feb. 26	Feb. 2	Feb. 18	Mar. 1	27	16	11	20 weeks	Nov. 26, 1922–Apr. 14, 1923 (forty-eighth to fifteenth week, inclusive).
Influenza and pneumonia.	32.3	64	4.55	237	Feb. 28	Feb. 25	Jan. 31	Feb. 17	Mar. 2	30	17	13		
All other causes	18.1	36	3.68	192	Feb. 28	Feb. 26	Feb. 4	Feb. 19	Mar. 1	25	15	10		
1926:														
All causes	48.3	100	8.84	461	Mar. 24	Mar. 23	Mar. 8	Mar. 22	Apr. 3	26	14	12	17 weeks	Jan. 31–May 29, 1926 (fifth to twenty-first week, inclusive).
Influenza and pneumonia.	28.2	58	4.89	255	Mar. 24	Mar. 22	Mar. 11	Mar. 23	Apr. 3	23	12	11		
All other causes	20.1	42	3.95	206	Mar. 24	Mar. 23	Mar. 2	Mar. 20	Apr. 5	34	18	16		
Spring of 1928:														
All causes	31.8	100	4.62	241	May 9	May 9	Apr. 27	May 12	June 1	35	15	20	19 weeks	Mar. 11–July 31, 1928 (eleventh to twenty-ninth week, inclusive).
Influenza and pneumonia.	14.5	45	1.82	95	May 9	May 11	Apr. 26	May 12	May 27	31	16	15		
All other causes	17.3	55	2.80	146	May 9	May 9	Apr. 27	May 12	June 5	39	15	24		
Winter of 1928–29:														
All causes	64.9	100	11.18	583	Jan. 9	Jan. 9	Dec. 26	Jan. 7	Jan. 19	24	12	12	12 weeks	Nov. 25, 1928–Feb. 16, 1929 (forty-eighth to seventh week, inclusive).
Influenza and pneumonia.	40.8	63	7.11	371	Jan. 9	Jan. 8	Dec. 26	Jan. 7	Jan. 18	23	12	11		
All other causes	24.1	37	4.07	212	Jan. 9	Jan. 10	Dec. 24	Jan. 8	Jan. 20	27	15	12		

[1] Excess rates are computed from data plotted in Figs. 2 and 3 and given in the accompanying tables. From July 1, 1919, to Jan. 1, 1930, the excess rates are computed as deviations from median rates for corresponding times of the year during the period 1921-1927; prior to July 1, 1919, the excess rates are computed as deviations from similar median rates during the period 1910-1916, corrections were made in the case of certain epidemics because the rates both before and after the outbreak were lower than the median rates used as normal. The corrections in such instances were made by measuring the excess not over the zero base line representing the median rate (Figs. 2 and 3), but over a line drawn below the base line. In all instances except the correction for all causes in 1918-19, the new line from which deviations were measured was parallel to the base line—in other words, the correction for the different weeks of the epidemic was constant. The corrections in terms of *annual* rates per 100,000 were as follows:

Epidemic of 1922—all causes, 50; influenza and pneumonia, 25, all other causes, 25.

Epidemic of the winter of 1915-16—all causes, 40, influenza and pneumonia, 0, all other causes, 40.

Epidemic of the spring of 1915—all causes, 90, influenza and pneumonia, 25, all other causes, 65.

For the epidemics of the spring of 1918 and the winter of 1918-19, no correction was needed for influenza and pneumonia, but for all causes a correction was made on a straight line basis ranging from 0 in the thirty-sixth week of 1917 to 220 in the twenth-sixth week of 1919. For further details as to the computation of the norms and excess rates, see footnote to Table 3.

[2] Aggregate enumerated population in 1920 census, 20,440,548, aggregate estimated 1928 population, 23,421,000. For list of cities, see footnote to Table 1.

[3] The modal or peak day was estimated by interpolation within the modal or peak week (determined by inspection) of the excess death rates by the method of differences, the following formula being used:

$$\text{Mode}=L+\left[-\frac{\Delta f_{-1}}{\Delta^2 f_{-1}}\right] \text{ in which}$$

L = lower limit of modal class (first day of peak week).

f_0 = frequency (excess rate) in modal or peak week.

f_{-1} = frequency (excess rate) in week prior to modal or peak week.

f_{+1} = frequency (excess rate) in week following modal or peak week.

First and second differences (Δ and Δ^2, respectively) for use in the formula are computed as follows:

$$\Delta f_{-1}=f_0-f_{-1}$$

$$\Delta^2 f_{-1}=(f_{+1}-f_0)-(f_0-f_{-1})$$

The expression in the formula which is added to the lower limit of the modal class always comes out in the form of a fraction or decimal less than unity and is in usual frequency distributions multiplied by the class interval and added to the lower limit of the class. This was adapted to the weekly intervals by reducing this decimal to sevenths. If it was less than one-seventh, the estimated modal day was the first day of the week; if it was between one-seventh and two-sevenths, the modal day was the second day of the week, etc.

[4] The median and quartile days were determined in the manner in which those constants are determined for a frequency distribution (the excess rates for this purpose being considered as frequencies), the interpolation within the median or quartile week to estimate the median or quartile day being done, as is usual in computing these constants, on a straight-line basis.

If the excess rates in the various weeks of the epidemic are summated and reduced from an annual to an actual basis, there is

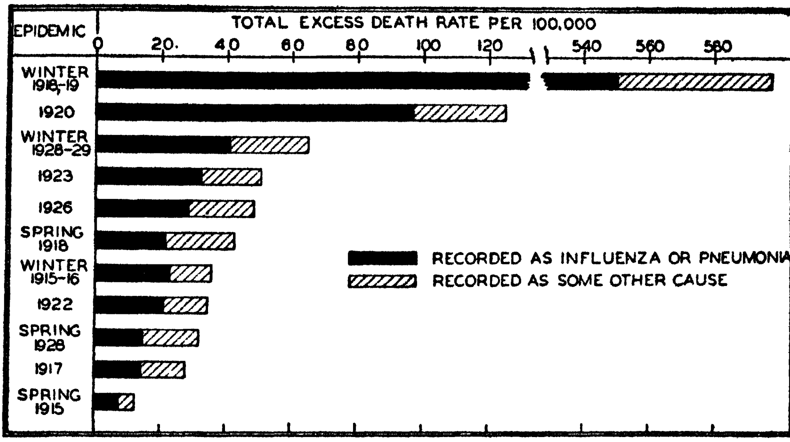

FIGURE 5.—Total excess mortality from all causes, from influenza and penumonia, and from all other causes during 11 epidemics in a group of 35 large cities in the United States, 1915–1929 (Excess over expected or normal rates for corresponding weeks based on 7-year medians. For details of computations see footnotes to Table 5)

obtained a figure representing the total excess rate throughout the whole epidemic. Figure 5 shows these total excess rates for each of the 11 epidemics from 1915 to 1929. In this graph the total bar repre-

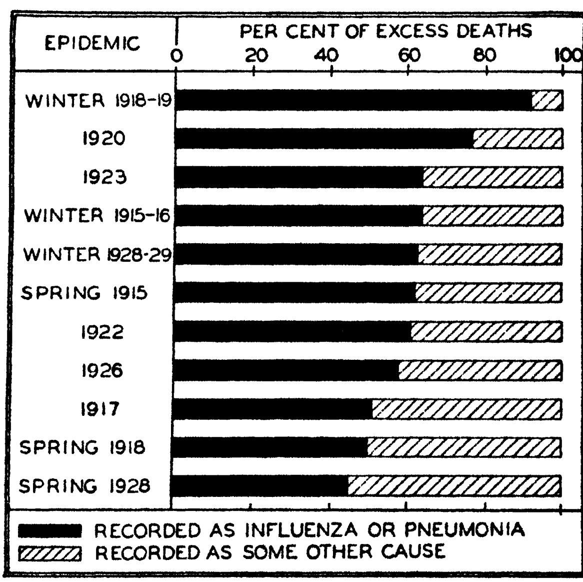

FIGURE 6.—Percentage of excess deaths from all causes that were recorded as influenza or pneumonia and that were recorded as some other cause during 11 epidemics in a group of 35 large cities in the United States, 1915–1929

sents the total excess from all causes, but each bar is divided into a black portion which represents the excess mortality credited to influ-

enza and pneumonia and a cross-hatched portion which represents the excess mortality from causes other than influenza and pneumonia. This graph indicates more clearly what has already been suggested in the weekly graph, that the excess mortality credited to causes other than influenza and pneumonia forms an appreciable part of the total.

It might be worth while to consider the percentage of the total excess mortality that was credited to influenza and pneumonia as compared with the percentage credited to other causes. (Fig. 6.) Only 8 per cent of the excess mortality during the pandemic of 1918–19 was credited to causes other than influenza and pneumonia, but in every one of the other epidemics the percentage credited to causes other than influenza and pneumonia is considerable; in fact, for the epidemics other than 1918–19 and 1920, about 40 per cent of the excess deaths have been credited to causes other than influenza and pneumonia. In the small epidemic of the spring of 1928, more than half of the excess deaths were credited to causes other than influenza and pneumonia, and in the epidemic of the spring of 1918 about half of the excess deaths were so credited.[5]

Part or all of the excess mortality from causes other than influenza and pneumonia may be accounted for by deaths in which influenza or pneumonia was credited as being a contributory cause but not the primary cause of death. In 10 cities [6] in which influenza surveys

[5] Computations based on final monthly mortality figures published by the U. S. Bureau of the Census indicate that an even greater proportion of the total excess deaths are generally credited to causes other than influenza and pneumonia than these preliminary weekly data show. The following table makes a comparison for each epidemic of results based on the two sources for the group of 35 cities considered in this study:

Source of data	Epidemic of –								
	Winter, 1918–19	1920	1922	1923	1926	Spring, 1928	Winter, 1928–29	Summary, 1918–1920	Summary, 1922–1929
	Per cent that excess mortality credited to causes other than influenza and pneumonia is of the total excess mortality from all causes								
Based on final monthly data from Census Bureau	11.9	26.8	43.2	45.7	50.4	46.2	45.7	14.8	46.3
Based on preliminary weekly reports from cities	7.9	22.5	39.3	35.9	41.6	54.4	37.1	10.5	40.5
	Per cent that excess mortality credited to causes other than influenza and pneumonia is of the excess mortality credited to influenza and pneumonia								
Based on final monthly data from Census Bureau	13.6	36.7	76.0	84.1	101.8	85.9	84.2	17.3	86.3
Based on preliminary reports from cities	8.6	29.1	64.7	56.0	71.2	119.3	59.1	11.7	68.1

So far as excess mortality from all causes is concerned, the preliminary weekly reports from the cities and the final monthly figures from the U. S. Bureau of the Census indicate approximately the same total excess mortality.

[6] San Francisco, Seattle, Des Moines, Kansas City, Mo., New Orleans, Cincinnati, Pittsburgh, Baltimore, Syracuse, Boston.

were made by the United States Public Health Service (2) following the epidemic of the winter of 1928–29 there was copied from the files of the local registrars of vital statistics a record of all deaths in which a respiratory cause was the primary or a contributory cause of death for the period from January 1, 1928, to the end of the epidemic in 1929. During the first five calendar weeks of 1929 (approximately the month of January) there occurred in these 10 cities 2,599 deaths in which influenza or pneumonia was the primary [7] cause, as against 952 during the first five weeks of 1928, an *excess* of 1,647 deaths credited to influenza or pneumonia. During the same 5-week period of 1929 there were 730 deaths in which influenza or pneumonia was credited as being a contributory cause but not the primary cause of death, as against 286 during the first five weeks of 1928, an *excess* of 444 deaths. The 444 excess deaths in which influenza or pneumonia was contributory are equal to 27 per cent of the 1,647 excess deaths credited as being due primarily to influenza or pneumonia.

The official mortality reports of the United States Bureau of the Census include data on nearly all phases of mortality in the same 10 cities except contributory causes of death. Considering data from that source on primary causes of death, 2,406 deaths from influenza and pneumonia occurred in these 10 cities during the calendar month of January, 1929, as against 884 during January, 1928, an *excess* of 1,522 deaths. Deaths from causes other than influenza and pneumonia amounted to 6,370 in January, 1929, as against 5,401 in January, 1928, an *excess* of 969 deaths. The 969 excess deaths credited to causes other than influenza and pneumonia are equal to 64 per cent of the 1,522 excess deaths credited to influenza and pneumonia. In contrast, it will be remembered that the excess deaths in which influenza or pneumonia was a contributory cause were equal to only 27 per cent of those in which influenza or pneumonia was primary. In other words, less than half of the excess deaths credited primarily to causes other than influenza and pneumonia are accounted for by those in which influenza or pneumonia is listed as a contributory cause of death.[8]

Excess mortality credited to causes other than influenza and pneumonia that has the same time distribution as that credited to influenza and pneumonia must in some way be related to the epidemic.

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[7] In determining which of the joint causes was primary and which contributory, the rules set forth in the Manual of Joint Causes prepared by the Mortality Division, U. S. Bureau of the Census were rigidly followed in order to make these data comparable with official mortality statistics.

[8] Similar computations based on two and three month periods instead of January alone give approximately the same result.

The use of the data for January, 1928, as a normal from which to measure the excess seems justifiable, because in the data for the 35 cities (1) the rate for January, 1928, approximates the January median for the period 1921–1927. In this group of 35 cities the excess mortality from causes other than influenza and pneumonia during the whole epidemic of 1928–29 amounted to 59 per cent of the excess credited to influenza and pneumonia, as against 57 per cent during the whole epidemic and 64 per cent during the month of January in similar computations for the 10 cities. The data for the 10 cities have been used because they were the only data available on influenza and pneumonia as contributory causes of death.

One possible explanation would be that persons with certain chronic diseases are easy victims of influenza and pneumonia and many die during the epidemics. In such cases some doctors might record the death as due to the condition that had existed longer and was primary in point of time while others might record it as due to the acute condition which was the reason for the death occurring at the particular time. Such deaths are obviously the joint result of both conditions and the necessity of choosing one cause as primary leads to difficulties that are not easily disposed of. The following analysis is not intended as a criticism of the usual method of determining primary causes of death, but only as an attempt to indicate what primary causes of death should be considered in an effort to trace down all of the deaths associated with influenza epidemics in the United States.

In connection with this problem deaths from certain chronic diseases in the group of 35 cities were assembled in monthly intervals for a series of years as far back as the data for each cause were available. Rates for monthly time intervals were plotted. The elimination of trend and seasonal variation would have made the peaks clearer, but graphs of the actual rates indicated fairly well the months in which the rates were abnormally high. Space does not permit the reproduction of these graphs, but the outstanding points may be summarized.

In the case of organic heart diseases there was a peak, corresponding in time with the influenza peak, for practically every epidemic. The heights of the peaks were relatively small, but they were sufficiently above other rates to be definitely more than would be expected at that season of the year. Nephritis and diabetes both had some peaks corresponding in time to the influenza peaks, but they were smaller and less definite than in the case of organic heart diseases. Cerebral hemorrhage showed peaks during some of the epidemics. The excessive rates for respiratory tuberculosis during influenza epidemics was pointed out some years ago by Britten and Sydenstricker (3). Nonrespiratory tuberculosis showed no marked peaks at times when influenza was prevalent. Puerperal septicemia rates had no peaks that occurred at times when influenza was epidemic. Other puerperal conditions, however, showed very large peaks coinciding in time with the 1918 and 1920 influenza peaks. Bronchitis showed very definite peaks with each epidemic. Cancer showed no peaks of any importance during influenza epidemics.

An attempt was made to estimate roughly the excess death rates credited to the various causes other than influenza and pneumonia. Excess rates were computed as deviations from rates for corresponding months of a preceding or following year or the average of a preceding and a following year, due account being taken of rates for corresponding months of other years to check the suitability of the norm selected.

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Because of the rough character of the methods used, the data are not shown for each epidemic separately but only for two groups of epidemics—(*a*) winter 1918–19, and 1920, and (*b*) 1922, 1923, 1926, spring 1928, and winter 1928–29. It will be noted in the tables which follow that the results for these two groups differ rather markedly; the individual epidemics within the respective groups were much more similar.

Table 6 shows the per cent of excess mortality from causes other than influenza and pneumonia that was credited to certain specific causes.

TABLE 6.—*Per cent that the excess*[1] *mortality from certain causes is of the excess mortality from all causes except influenza and pneumonia, during months when influenza is epidemic—35 large cities in the United States*[2]

Cause of death (with International List number, 1920 revision)	Per cent that the excess mortality from each cause is of excess mortality from all causes except influenza and pneumonia		Total excess mortality per 100,000 population (actual basis)	
	Epidemics of winter 1918–19 and 1920 [3]	Epidemics of 1922, 1923, 1926, spring 1928 and winter 1928–29 [3]	Epidemics of winter 1918–19 and 1920 [3]	Epidemics of 1922, 1923, 1926, spring 1928 and winter 1928–29 [3]
All causes except influenza and pneumonia	100.0	100.0	[4] 98.9	[4] 104.2
Organic heart diseases (90)	18.4	46.4	18.2	48.4
Nephritis (128, 129)	11.4	16.0	11.3	16.7
Cerebral hemorrhage and softening (74, 83)	3.9	9.3	3.9	9.7
Diabetes mellitus (57)	([5])	6.3	([5])	6.5
Respiratory tuberculosis (31)	19.1	6.9	18.9	7.2
Bronchitis (99)	5.4	4.3	5.3	4.5
Puerperal causes other than septicemia (143–145; 147–150)	8.0	.9	7.9	.9

[1] Excess over the corresponding month of the preceding year or the average of a preceding year and a following year.

[2] For list of cities see footnote to Table 1.

[3] Months included as epidemic in this table were as follows: September, 1918–January, 1919; January–March, 1920; January–March, 1922; December, 1922–March, 1923; February–April, 1926; March–June, 1928; December, 1928–February, 1929.

[4] The total excess rates from all causes except influenza and pneumonia in this table can not be expected to agree with those given in Table 5 for several reasons: (*a*) Data in Table 5 are based on preliminary weekly reports from the cities and data in this table are based on final figures from the Census Bureau; (*b*) total rates in Table 5 are computed from weekly rates and total rates in this table are computed from monthly rates for only approximately the same period of time; (*c*) in the final tabulation of the Census Bureau, the allocation to the different cause groups and the method of determining the primary cause in joint cause deaths may have been slightly different from that used by the cities.

[5] No monthly data available prior to 1921.

During the major influenza epidemics of 1918–19 and 1920, 19 per cent of the excess deaths from causes other than influenza and pneumonia were credited to respiratory tuberculosis, 18 per cent to organic heart diseases, 11 per cent to nephritis, 8 per cent to puerperal conditions other than septicemia, 5 per cent to bronchitis, and 4 per cent to cerebral hemorrhage. In the epidemics of 1922, 1923, and 1926, spring of 1928, and the winter of 1928–29 organic heart diseases were more important and tuberculosis and puerperal causes less important as contributors to the excess deaths from causes other than influenza and pneumonia. In those epidemics 46 per cent of such excess deaths were credited to organic heart diseases, 16 per cent to nephritis, 9 per cent to cerebral hemorrhage, 7 per cent to respiratory tuberculosis,

6 per cent to diabetes, 4 per cent to bronchitis, and 1 per cent to puerperal causes other than septicemia.

The chief differences between the two groups of epidemics, it will be noted, are (*a*) respiratory tuberculosis and puerperal causes were both less important as causes of excess deaths in the epidemics of 1922–1929 than in those of 1918–1920 (the fact that the 1918–19 and 1920 epidemics fell heavily upon young adults may in part explain the high excess rates for these conditions, which likewise fall heavily upon young adults); and (*b*) organic heart diseases and to a lesser extent nephritis and cerebral hemorrhage were more important as causes of excess deaths in the 1922–1929 epidemics than in the larger epidemics of 1918–1920. In these minor epidemics organic heart diseases account for somewhere near half of the excess deaths not credited to influenza and pneumonia. With respect to this situation, all the epidemics included in the 1922–1929 group are similar, there being no definite tendency toward increase or decrease in the percentage credited to organic heart diseases since 1922.

Some of the causes of death considered in Table 6 are not of first importance in absolute numbers, and therefore the excess credited to them does not greatly enhance the excess mortality of the epidemic. It is important, however, in studying chronological changes in the death rate from such conditions as those included in Table 6 to remember that during periods when influenza is epidemic the death rate from these diseases is considerably increased. Table 7 shows the per cent that the excess death rate from certain specific causes is of the expected or normal rate for the same cause, as an indication of the extent that the rates from these various causes are increased during months when influenza is epidemic.

TABLE 7.—*Per cent that the recorded mortality from certain causes is increased during months when influenza is epidemic—35 large cities* [1] *in the United States*

Cause of death (with International List numbers, 1920 revision)	Per cent that excess [2] rate from each cause is of expected or normal rate for same cause (expected rate = 100)		Expected or normal rate from each cause per 100,000 population (actual basis)	
	Epidemics of winter 1918–19 and 1920 [3]	Epidemics of 1922, 1923, 1926, spring 1928, and winter 1928–29 [3]	Epidemics of winter 1918–19 and 1920 [3]	Epidemics of 1922, 1923, 1926, spring 1928, and winter 1928–29 [3]
All causes	72.2	11.3	927.0	1,987.6
Influenza and pneumonia (11, 100, 101)	442 8	44.7	128.8	270.0
All except influenza and pneumonia	12.4	6.1	798.2	1,717.6
Organic heart diseases (90)	14.7	15 1	124 3	391.2
Nephritis (128, 129)	15.4	10.1	73.2	165.7
Cerebral hemorrhage and softening (74, 83)	7.7	8.5	50.5	113.2
Diabetes mellitus (57)	(4)	18.8	(4)	34.6
Respiratory tuberculosis (31)	23.5	5.6	80.5	127.5
Bronchitis (99)	49.7	35.8	10.7	12.5
Puerperal causes other than septicemia (143–145; 147–150)	124.3	7.5	6.4	12.1

[1] For list of cities see footnote to Table 1.
[2] Excess over the corresponding month of the preceding year or the average of a preceding year and a following year.
[3] See footnote to Table 6 for months included as epidemic.
[4] No monthly data available prior to 1921.

During influenza epidemic months in the years 1922–1929 the bronchitis death rate was 36 per cent above normal, and in peak months the increase was no doubt much greater. Similarly, there were very large increases in the death rate from puerperal causes during epidemic months of the years 1918–1920, which would have to be taken into account in any study of the chronology of deaths from these causes. The same thing is true of other more frequent causes of death listed in the table. Periods that include influenza epidemics are likely to show increased death rates from many diseases.

SUMMARY

Death rates from all causes, from influenza and pneumonia, and from all other causes were analyzed in weekly intervals for the years 1918 to 1929 for a group of 35 large cities in the United States with respect to (*a*) time distribution of the excess deaths during influenza epidemics in each of the three cause groups, (*b*) extent of the excess above expected or normal rates for the same season of the year, (*c*) proportion of the total excess that was credited to influenza and pneumonia, and (*d*) the proportion credited to other causes of death.

Weekly excess deaths credited to causes other than influenza and pneumonia present a picture strikingly similar in time distribution to excess deaths credited to influenza and pneumonia.

In the minor epidemics that have occurred since 1920, about 40 per cent of the excess mortality from all causes has been credited to causes other than influenza and pneumonia. In the epidemic of 1920, 23 per cent of the excess deaths were so credited, and in 1918–19, 8 per cent of the excess deaths were credited to causes other than influenza and pneumonia.

Excess deaths in which influenza or pneumonia was credited as a contributory but not as a primary cause of death seem to account for only about half of the excess deaths credited to causes other than influenza and pneumonia.

The chief causes to which excess deaths from causes other than influenza and pneumonia are credited during influenza epidemics are organic heart diseases, nephritis, cerebral hemorrhage, diabetes, respiratory tuberculosis, bronchitis, and puerperal conditions other than septicemia. In the epidemics of 1918–19 and 1920 respiratory tuberculosis and puerperal causes were more important as contributors of excess deaths than in the minor epidemics since 1920. In the latter epidemics from 1922 to 1929, 46 per cent of the excess deaths not credited to influenza and pneumonia were credited to organic heart diseases.

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(1) Collins, S. D., Frost, W. H., Gover, M., and Sydenstricker, E.: Mortality from Influenza and Pneumonia in 50 Large Cities of the United States, 1910–1929. Pub. Health Rep., vol. 45, No. 39, September 26, 1930. (Reprint 1415.)

(2) Collins, S. D.: Age and Sex Incidence of Influenza and Pneumonia Morbidity and Mortality in the Epidemic of 1928–29 with Comparative Data for the Epidemic of 1918–19. Pub. Health Rep., vol. 46, No. 33, August 14, 1931. (Reprint 1500.)

(3) Britten, R. H., and Sydenstricker, E.: Mortality from Pulmonary Tuberculosis in Recent Years. Pub. Health Rep., vol. 37, No. 46, November 17, 1922. (Reprint 799.)

PRECEDING PAPERS ON THE EPIDEMIOLOGY OF INFLUENZA

Preceding papers from the office of statistical investigations dealing with various phases of the epidemiology of influenza are listed below:

The Incidence of Epidemic Influenza, 1918–19. A Further Analysis According to Age, Sex, and Color of the Records of Morbidity and Mortality Obtained in Surveys of 12 Localities. By Rollo H. Britten. Pub. Health Rep., vol. 47, No. 6, Feb. 5, 1932, pp. 303–339.

Age and Sex Incidence of Influenza and Pneumonia Morbidity and Mortality in the Epidemic of 1928–29 with Comparative Data for the Epidemic of 1918–19. By Selwyn D. Collins. Pub. Health Rep., vol. 46, No. 33, August 14, 1931. (Reprint 1500.)

The Incidence of Influenza Among Persons of Different Economic Status During the Epidemic of 1918. By Edgar Sydenstricker. Pub. Health Rep., vol. 46, No. 4, January 23, 1931. (Reprint 1444.)

Mortality from Influenza and Pneumonia in 50 Large Cities of the United States, 1910–1929. By S. D. Collins, W. H. Frost, Mary Gover, and Edgar Sydenstricker. Pub. Health Rep., vol. 45, No. 39, September 26, 1930. (Reprint 1415.)

Influenza-Pneumonia Mortality in a Group of about 95 Cities in the United States, 1920–1929. By S. D. Collins. Pub. Health Rep., vol. 45, No. 8, February 21, 1930. (Reprint 1355.)

The Influenza Epidemic of 1926. Pub. Health Rep., vol. 41, No. 34, August 20, 1926. (Reprint 1104.)

Variations in Case Fatality During the Influenza Epidemic of 1918. By Edgar Sydenstricker. Pub. Health Rep., vol. 36, No. 36, September 9, 1920. (Reprint 692.)

Statistics of Influenza Morbidity. By W. H. Frost. Pub. Health Rep., vol. 35, No. 11, March 12, 1920. (Reprint 586.)

Difficulties in Computing Civil Death Rates for 1918. By Edgar Sydenstricker and Mary L. King. Pub. Health Rep., vol. 35, No. 7, February 13, 1920. (Reprint 583.)

The Epidemiology of Influenza. By W. H. Frost. Pub. Health Rep., vol. 34, No. 33, August 15, 1919. (Reprint 550.)

Epidemic Influenza in Foreign Countries. By W. H. Frost and Edgar Sydenstricker. Pub. Health Rep., vol. 34, No. 25, June 20, 1919. (Reprint 537.)

Influenza in Maryland. By W. H. Frost and Edgar Sydenstricker. Pub. Health Rep., vol. 34, No. 11, March 14, 1919. (Reprint 510.)

A Comparison of the Mortality Rates by Weeks During the Influenza Epidemic of 1889–90 and During the Primary Stage of the Influenza Epidemic of 1918 in 12 Cities in the United States. Pub. Health Rep., vol. 34, No. 5, January 31, 1919. (Reprint 502.)

Preliminary Statistics of the Influenza Epidemic. By Edgar Sydenstricker. Pub. Health Rep., vol. 33, No. 52, December 27, 1918.

DEATHS DURING WEEK ENDED OCTOBER 22, 1932

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Oct. 22, 1932	Corresponding week, 1931
Data from 85 large cities of the United States:		
Total deaths	7,355	7,489
Deaths per 1,000 population, annual basis	10.5	10.8
Deaths under 1 year of age	559	709
Deaths under 1 year of age per 1,000 estimated live births [1]	47	54
Deaths per 1,000 population, annual basis, first 42 weeks of year	11.1	11.9
Data from industrial insurance companies:		
Policies in force	70,173,439	74,520,708
Number of death claims	12,741	12,648
Death claims per 1,000 policies, in force, annual rate	9.5	8.8
Death claims per 1,000 policies, first 42 weeks of year, annual rate	9.6	9.7

[1] 1932, 81 cities; 1931, 77 cities.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended October 29, 1932, and October 31, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended October 29, 1932, and October 31, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Oct. 29, 1932	Week ended Oct. 31, 1931	Week ended Oct. 29, 1932	Week ended Oct. 31, 1931	Week ended Oct. 29, 1932	Week ended Oct. 31, 1931	Week ended Oct. 29, 1932	Week ended Oct. 31, 1931
New England States								
Maine	1	2		2		96	0	0
New Hampshire		6				1	0	0
Vermont		1			1		0	0
Massachusetts	34	52	2	8	40	59	0	2
Rhode Island	7	7			1	60	0	0
Connecticut	5	5	2	3	10	9	2	1
Middle Atlantic States.								
New York	25	72	[1] 14	[1] 20	96	87	6	7
New Jersey	26	27	12	8	93	19	2	1
Pennsylvania	118	111			193	126	2	5
East North Central States.								
Ohio	122	142	94	19	101	25	1	3
Indiana	101	109	55		10	20	5	2
Illinois	112	110	17	8	30	26	7	4
Michigan	26	67	5		104	42	3	3
Wisconsin	13	22	26	11	123	17	1	2
West North Central States:								
Minnesota	21	21	3	1	102	6	1	1
Iowa	25	27		2	3	3	2	3
Missouri	92	92	2	3	8	5	1	1
North Dakota	1	6			67		0	0
South Dakota	1	4				13	0	1
Nebraska	40	22			5	1	0	0
Kansas	26	54	3		8	18	1	1
South Atlantic States.								
Delaware	4	3			1		0	0
Maryland [2]	22	77	2	15	3	11	2	2
District of Columbia	2	11	1			2	0	0
Virginia	61				58		0	
West Virginia	69	91	7	18	10	57	1	0
North Carolina [3]	106	214	7	4	60	96	1	3
South Carolina [3]	34	60	393	322	1	13	0	0
Georgia [2]	56	51		21	1	3	0	1
Florida [3]	18	26	4		1	27	0	0
East South Central States:								
Kentucky	82	170	36		44		1	2
Tennessee	95	166	25	27	1	6	1	0
Alabama [3]	94	121	28	12	2	6	1	1
Mississippi	51	106					0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended October 29, 1932, and October 31, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Oct. 29, 1932	Week ended Oct. 31, 1931	Week ended Oct. 29, 1932	Week ended Oct. 31, 1931	Week ended Oct. 29, 1932	Week ended Oct. 31, 1931	Week ended Oct. 29, 1932	Week ended Oct. 31, 1931
West South Central States:								
Arkansas	23	62	37	2	4	2	0	0
Louisiana [3]	29	43	17	8	4	6	2	0
Oklahoma [4]	86	161	25	14	1		0	0
Texas [3]	185	35	46	10		14	0	0
Mountain States:								
Montana		1	14		85	18	1	0
Idaho	8	1			1	1	0	0
Wyoming		2	1		1		0	1
Colorado	6	1			1	1	0	0
New Mexico	10	22	27				0	0
Arizona	4	8	40	4	1		0	0
Utah [2]				2	2	3	1	0
Pacific States:								
Washington		3			5	30	0	0
Oregon		4	36	22	23	11	0	0
California	59	105	214	44	40	108	4	6
Total	1,900	2,503	1,195	610	1,345	1,048	49	53

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Oct. 29, 1932	Week ended Oct. 31, 1931	Week ended Oct. 29, 1932	Week ended Oct. 31, 1931	Week ended Oct. 29, 1932	Week ended Oct. 31, 1931	Week ended Oct. 29, 1932	Week ended Oct. 31, 1931
New England States:								
Maine	3	7	27	15	0	0	2	5
New Hampshire	0	0	26	5	0	0	0	1
Vermont	0	6	11	6	0	14	0	0
Massachusetts	1	39	181	199	0	0	14	5
Rhode Island	0	3	20	14	0	0	0	0
Connecticut	2	12	26	38	0	0	0	2
Middle Atlantic States:								
New York	7	92	238	242	1	24	22	26
New Jersey	8	26	119	90	0	0	7	2
Pennsylvania	32	27	402	282	0	0	55	76
East North Central States:								
Ohio	1	10	436	445	19	3	26	66
Indiana	1	1	117	88	1	5	6	10
Illinois	6	37	284	214	4	18	19	27
Michigan	1	28	218	141	0	19	3	17
Wisconsin	3	21	59	52	1	4	1	4
West North Central States:								
Minnesota	3	30	51	35	0	4	9	2
Iowa	0	11	47	22	2	13	2	5
Missouri	1	3	87	86	0	3	20	19
North Dakota	0	1	2	13	0	0	0	1
South Dakota	0	1	30	9	0	5	2	1
Nebraska	4	1	61	11	3	4	1	1
Kansas	1	0	93	51	1	3	7	13
South Atlantic States:								
Delaware	1	0	7	14	0	0	1	4
Maryland [2]	0	1	79	90	0	0	30	50
District of Columbia	1	1	17	11	0	0	1	3
Virginia [2]	3		96		0		20	
West Virginia	0	4	77	84	0	0	25	81
North Carolina [3]	1	4	111	170	0	0	17	20
South Carolina [3]	0	1	9	21	1	7	22	9
Georgia [4]	1	0	45	21	0	0	21	19
Florida [3]	0	1	7	7	0	0	0	4
East South Central States:								
Kentucky	3	2	88	103	1	4	43	42
Tennessee	4	2	90	85	0	5	24	38
Alabama [3]	1	1	56	64	0	0	5	33
Mississippi	0	0	45	41	0	4	4	18

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended October 29, 1932, and October 31, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Oct. 29, 1932	Week ended Oct. 31, 1931	Week ended Oct. 29, 1932	Week ended Oct. 31, 1931	Week ended Oct. 29, 1932	Week ended Oct. 31, 1931	Week ended Oct. 29, 1932	Week ended Oct. 31, 1931
West South Central States:								
Arkansas	3	1	17	53	0	1	9	18
Louisiana [3]	0	0	18	24	1	1	6	36
Oklahoma [4]	2	0	50	52	0	0	28	45
Texas [3]	2	0	80	44	1	0	23	10
Mountain States:								
Montana	0	0	16	7	0	0	2	6
Idaho	1	0	3	5	2	0	3	1
Wyoming	0	0	18	3	0	0	0	0
Colorado	1	1	33	25	1	0	3	9
New Mexico	0	0	14	13	0	0	17	7
Arizona	0	1	15	7	0	1	4	5
Utah [2]	0	0	0	5	0	0	1	0
Pacific States:								
Washington	1	3	27	35	5	3	5	5
Oregon	1	0	12	29	2	11	3	6
California	4	2	115	134	5	8	7	18
Total	104	381	3,680	3,208	51	164	523	770

[1] New York City only.
[2] Week ended Friday
[3] Typhus fever, week ended Oct. 29, 1932, 25 cases: 3 cases in Virginia, 1 case in North Carolina, 2 cases in South Carolina, 5 cases in Georgia, 1 case in Florida, 6 cases in Alabama, 2 cases in Louisiana, and 5 cases in Texas.
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa, and for 1931 are exclusive of Tulsa only.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
August, 1932										
Missouri	4	50	5	20	17		6	66		145
New Hampshire								13	0	3
September, 1932										
California	8	194	639	3	98	3	18	277	25	45
Colorado	5	18		3	13		0	147	16	46
Idaho	3	29			16		1	13		19
Missouri	8	174		21	9		2	150	0	108
Montana	1	5	11		131		1	39	2	24
New Hampshire		1					2	20	0	
Oregon		6	54	7	66		2	29	5	14
South Carolina		216	615	1,334	22	209	7	20	0	128
South Dakota		6			5		1	19	0	4
Texas	2	273	111	946		4	5	88		169
Virginia	3	140		37	37	16	9	161	0	138
Washington	2	17	28		29		12	78	4	28

August, 1932

Missouri:	Cases
Chicken pox	12
Dysentery	1
Mumps	68
Rabies in animals	2
Septic sore throat	2
Tularaemia	1
Undulant fever	31
Whooping cough	122

September, 1932

Anthrax:	Cases
California	1
South Dakota	2
Chicken pox:	
California	302
Colorado	14
Idaho	16
Missouri	7
Montana	32

Chicken pox—Con.	Cases
Oregon	81
South Carolina	5
South Dakota	18
Virginia	17
Washington	81
Diarrhea:	
South Carolina	407
Diarrhea and dysentery:	
Virginia	287

	Cases
Dysentery:	
California (amebic)	8
California (bacillary)	44
Missouri	4
Oregon	1
Food poisoning:	
California	38
German measles:	
California	37
Montana	7
Washington	11
Granuloma, coccidioidal.	
California	1
Hookworm disease:	
California	1
South Carolina	83
Impetigo contagiosa:	
Colorado	20
Montana	23
Oregon	73
Jaundice, epidemic:	
Oregon	1
Leprosy:	
Washington	1
Lethargic encephalitis:	
California	6
South Carolina	2
Texas	1
Washington	4
Mumps:	
California	273
Colorado	18
Idaho	46
Missouri	33
Montana	2
Oregon	17
South Carolina	25
South Dakota	2
Washington	13
Ophthalmia neonatorum.	
California	2
South Carolina	9
Virginia	5

	Cases
Paratyphoid fever:	
California	3
Colorado	3
Oregon	2
South Carolina	13
Texas	1
Virginia	12
Psittacosis	
California	1
Puerperal septicemia:	
Washington	1
Rabies in animals:	
California	20
Missouri	7
South Carolina	11
Washington	23
Relapsing fever.	
California	9
Rocky Mountain spotted fever.	
Montana	1
Oregon	1
Scabies:	
Oregon	62
Septic sore throat:	
California	3
Colorado	6
Idaho	1
Montana	4
Oregon	7
Virginia	26
Silicosis	
Montana	2
Tetanus	
California	5
South Dakota	1
Washington	1
Trachoma.	
California	39
Oregon	3
South Dakota	5
Virginia	1

	Cases
Trichinosis:	
Oregon	17
Tularaemia:	
Idaho	1
Montana	8
Oregon	2
South Carolina	1
Virginia	2
Typhus fever:	
South Carolina	4
Virginia	2
Undulant fever:	
California	9
Colorado	1
Missouri	30
Oregon	5
Virginia	2
Washington	3
Vincent's angina:	
Colorado	2
Montana	1
Oregon	19
Vincent's infection:	
Washington	3
Whooping cough:	
California	986
Colorado	70
Idaho	6
Missouri	69
Montana	123
Oregon	24
South Carolina	39
South Dakota	21
Virginia	213
Washington	39

WEEKLY REPORTS FROM CITIES

City reports for week ended October 22, 1932

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0	-------	1	0	3	0	0	0	0	6	19
New Hampshire:											
Concord	0	-------	0	0	0	0	0	0	0	0	7
Nashua	0	-------	0	0	0	0	0	0	0	0	9
Vermont:											
Barre	0	-------	0	0	0	0	0	0	0	0	0
Massachusetts:											
Boston	2	-------	1	11	14	38	0	16	0	32	200
Fall River	1	-------	0	1	3	5	0	0	2	2	35
Springfield	1	-------	0	0	1	1	0	3	0	14	29
Worcester	0	-------	0	0	3	13	0	2	1	0	49
Rhode Island.											
Pawtucket	0	-------	0	0	0	0	0	0	0	0	-------
Providence	3	-------	0	0	3	15	0	1	1	11	69
Connecticut.											
Bridgeport	0	1	0	3	4	7	0	0	0	5	25
Hartford	0	-------	0	1	3	0	0	0	0	3	42
New Haven	0	-------	0	0	3	1	0	2	0	14	51
New York:											
Buffalo	5	2	0	4	18	23	0	1	0	35	121
New York	39	15	4	33	114	54	0	73	8	79	1,347
Rochester	6	-------	0	1	4	10	0	2	1	2	71
Syracuse	0	-------	0	0	4	8	0	0	0	2	38
New Jersey:											
Camden	5	1	1	0	4	3	0	0	0	0	28
Newark	1	8	0	4	4	8	0	5	1	15	95
Trenton	1	-------	0	1	3	11	0	2	1	3	46
Pennsylvania:											
Philadelphia	6	6	3	2	17	47	0	20	5	21	383
Pittsburgh	5	1	1	4	11	33	0	3	1	12	150
Reading	1	-------	0	7	2	2	0	1	0	7	[illegible]

City reports for week ended October 22, 1932—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Ohio:											
Cincinnati	6		1	2	5	19	0	6	1	0	107
Cleveland	2	33	0	2	12	44	0	10	0	12	138
Columbus	2		0	23	2	12	0	4	0	0	85
Toledo	2		0	1	6	22	0	5	2	6	54
Indiana:											
Fort Wayne	23		0	0	0	1	0	0	1	1	18
Indianapolis	4		1	0	7	11	0	5	1	2	
South Bend	1		0	0	0	6	0	0	0	0	14
Terre Haute	0		0	2	1	1	0	0	0	0	9
Illinois:											
Chicago	20	5	2	22	36	132	0	35	4	26	590
Springfield	9		0	0	1	4	0	0	0	0	21
Michigan:											
Detroit	18	2	0	10	10	48	0	23	2	66	237
Flint	2	11	0	0	4	0	0	1	0	5	28
Grand Rapids	0		0	0	0	3	0	0	0	13	29
Wisconsin:											
Kenosha	0		0	0	1	2	1	1	0	0	9
Madison	1			2		1	0		1	3	
Milwaukee	3	3	3	2	3	9	0	5	0	27	101
Racine	0	0	0	0	0	3	0	1	0	1	10
Superior	0		0	0	0	1	0	1	0	0	6
Minnesota:											
Duluth	0		0	1	1	3	0	1	1	0	15
Minneapolis	1		0	6	9	17	0	3	0	6	98
St. Paul	0		0	0	4	10	0	0	0	27	48
Iowa:											
Des Moines	11			0		5	0		0	0	44
Sioux City	3		0	0		2	1		1	0	
Waterloo	0		0	0	0	1	0	0	0	5	
Missouri:											
Kansas City	4		0	4	14	9	0	3	0	5	92
St. Joseph	11		1	0	2	5	0	0	1	0	19
St. Louis	16	2		2	2	19	0	8	5	0	199
North Dakota:											
Fargo	0		0	1	2	0	0	0	0	0	10
Grand Forks	0		0	3	0	1	0	0	0	0	0
South Dakota:											
Aberdeen	0		0	0	0	0	0	0	0	0	0
Nebraska:											
Omaha	18		0	0	5	12	0	1	0	2	53
Kansas:											
Topeka	4		0	1	0	2	0	0	0	0	3
Wichita	5		0	0	4	11	0	1	0	0	34
Delaware:											
Wilmington	0		0	2	2	5	0	0	0	2	34
Maryland:											
Baltimore	1	2	0	0	19	25	0	10	3	15	194
Cumberland	0		0	0	1	1	0	1	1	0	13
Frederick	0		0	0	0	1	0	0	0	0	2
District of Columbia:											
Washington	1	1	0	3	8	16	0	8	0	7	137
Virginia:											
Lynchburg	1		0	0	0	2	0	0	0	4	7
Norfolk	0		0	15	1	2	0	0	0	1	20
Richmond	3		0	1	5	5	0	3	0	4	54
Roanoke	0		0	0	0	6	0	0	0	1	11
West Virginia:											
Charleston	0		0	0	1	0	0	0	0	0	19
Huntington	7		0	0	0	7	0	0	0	0	
Wheeling	0		0	3	3	2	0	0	0	9	8
North Carolina:											
Raleigh	1		0	1	1	5	0	1	0	0	11
Wilmington	2		0	2	1	1	0	0	0	0	15
Winston-Salem	1		0	1	0	0	0	4	0	0	23
South Carolina:											
Charleston	0	6	0	0	0	1	0	1	2	0	21
Columbia	3		0	0	3	2	0	5	2	0	37
Greenville	0		0	0	0	0	0	0	0	0	0
Georgia:											
Atlanta	9	5	0	0	7	5	0	4	2	1	70
Brunswick	0		0	0	0	0	0	0	0	0	4
Savannah	2		0	0	2	2	0	2	0	0	26
Florida:											
Miami	0	1	0	1	2	0	0	2	0	1	14
Tampa	4		0	0	0	1	0	0	0	0	27

City reports for week ended October 22, 1932—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Kentucky:											
Lexington	0	------	0	0	3	7	0	2	0	0	14
Louisville	8	1	0	0	11	6	0	3	4	2	111
Tennessee:											
Memphis	9	------	0	1	6	8	0	9	1	0	99
Nashville	4	------	0	0	0	7	0	3	2	0	37
Alabama:											
Birmingham	13	3	0	1	0	8	0	3	2	0	59
Mobile	4	------	0	0	2	0	0	1	0	0	25
Montgomery	2	------	0	0	0	3	0	------	0	0	------
Arkansas:											
Fort Smith	2	------	0	0	0	1	0	0	0	0	------
Little Rock	3	------	0	0	0	4	0	3	0	0	3
Louisiana:											
New Orleans	12	3	1	0	15	7	0	8	0	1	124
Shreveport	0	------	0	0	1	1	0	1	0	0	31
Oklahoma:											
Oklahoma City	12	16	0	2	2	11	0	1	0	0	28
Tulsa	6	------	0	0	0	4	0	0	0	0	2
Texas:											
Dallas	37	------	0	0	7	13	0	1	0	0	48
Fort Worth	9	------	1	0	5	10	0	0	2	0	28
Galveston	0	------	0	0	2	0	0	0	0	0	7
Houston	12	------	0	0	3	2	0	8	0	0	64
San Antonio	8	------	0	0	10	3	0	8	0	0	62
Montana:											
Billings	0	------	0	0	0	0	0	0	0	0	3
Great Falls	0	------	0	3	1	3	0	1	0	0	13
Helena	0	------	0	0	0	0	0	0	0	0	4
Missoula	0	------	0	0	0	0	0	0	0	0	7
Idaho:											
Boise	0	------	0	3	0	0	7	0	1	0	5
Colorado:											
Denver	7	------	0	2	14	15	0	1	0	10	81
Pueblo	0	------	0	0	2	0	0	0	0	4	12
New Mexico:											
Albuquerque	2	3	0	0	0	0	0	3	0	0	10
Arizona:											
Phoenix	0	------	0	0	2	0	0	3	0	0	------
Utah:											
Salt Lake City	1	------	0	2	2	0	0	2	0	1	28
Nevada:											
Reno	0	------	0	0	0	0	0	0	0	0	3
Washington:											
Seattle	0	------	------	0	------	2	1	------	1	0	------
Spokane	0	------	------	1	------	1	0	------	0	0	------
Tacoma	0	------	0	0	0	2	2	0	0	0	19
Oregon:											
Portland	0	2	0	1	2	5	0	0	0	0	56
Salem	0	2	0	1	0	0	0	0	0	0	0
California:											
Los Angeles	19	82	1	8	14	31	0	17	4	17	270
Sacramento	1	1	0	0	3	0	0	2	0	2	22
San Francisco	3	4	1	2	7	6	0	13	1	13	153

City reports for week ended October 22, 1932—Continued

State and city	Meningococcus meningitis		Polio-mye-litis cases	State and city	Meningococcus meningitis		Polio-mye-litis cases
	Cases	Deaths			Cases	Deaths	
Massachusetts:				Maryland:			
Boston	0	0	1	Baltimore	0	1	1
				District of Columbia:			
New York:				Washington	0	0	4
Buffalo	1	0	0	Florida:			
New York	3	0	2	Tampa	0	0	1
New Jersey:							
Camden	0	0	2	Kentucky:			
Pennsylvania:				Louisville	0	1	0
Philadelphia	1	0	16	Tennessee:			
Reading	0	0	1	Nashville	0	0	2
Ohio:				Texas:			
Cleveland	0	0	1	Fort Worth	0	0	1
Columbus	1	1	0				
Indiana:				Montana:			
Indianapolis	0	1	0	Missoula	1	1	0
Illinois:							
Chicago	4	1	2	Oregon:			
Michigan:				Portland	0	0	1
Detroit	2	0	0	California:			
				Los Angeles	0	0	1
Iowa:				San Francisco	0	0	2
Des Moines	0	0	1				

Lethargic encephalitis.—Cases: New York, 1; Philadelphia, 1; Detroit, 3; San Francisco, 1.
Pellagra.—Cases: Raleigh, 1; Winston-Salem, 1; New Orleans, 2.
Typhus fever.—Cases. Savannah, 1, Montgomery, 2, Houston, 1.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended October 15, 1932.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases for the week ended October 15, 1932, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis				1					1
Chicken pox	5	3	38	118	37	5	18	21	245
Diphtheria	1	4	20	15	7	7			54
Erysipelas			4	2	2	2		1	11
Influenza	6							9	15
Lethargic encephalitis			1						1
Measles	1		9	98	10		35	26	179
Mumps				34	1	1	1	18	55
Paratyphoid fever				3					3
Pneumonia	1							5	6
Poliomyelitis	1		38	17		1	1		58
Scarlet fever	9	8	61	38	14	5	2	15	152
Trachoma					9	2		3	14
Tuberculosis	3	12	62	39	6	35		12	169
Typhoid fever	4	1	44	27	4	9		1	90
Undulant fever				1					1
Whooping cough	7		44	68	22	2	7	4	154

ITALY

Communicable diseases—Four weeks ended June 26, 1932.—During the four weeks ended June 26, 1932, cases of certain communicable diseases were reported in Italy as follows:

Disease	May 30–June 5		June 6–12		June 13–19		June 20–26	
	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected
Anthrax	12	12	21	19	23	18	15	15
Cerebrospinal meningitis	18	16	12	11	8	7	11	9
Chicken pox	274	133	202	103	198	90	227	99
Diphtheria and croup	307	166	277	148	282	168	317	188
Dysentery	2	2	5	4	10	3	5	4
Lethargic encephalitis	3	3	2	2	2	2	1	1
Measles	1,862	311	1,597	275	1,680	296	1,637	330
Poliomyelitis	12	12	9	8	15	15	20	18
Scarlet fever	338	121	318	123	327	115	345	129
Typhoid fever	226	140	240	138	209	141	384	197

PUERTO RICO

Communicable diseases—Four weeks ended October 8, 1932.—During the four weeks ended October 8, 1932, cases of certain communicable diseases were reported in Puerto Rico as follows:

Disease	Cases	Disease	Cases
Bronchitis	14	Ophthalmia neonatorum	3
Chicken pox	29	Paratyphoid fever	2
Diphtheria	34	Pneumonia	11
Dysentery	35	Syphilis	162
Erysipelas	5	Tetanus	2
Filariasis	7	Tetanus, infantile	3
Framboesia, tropical	9	Trachoma	5
Influenza	6,269	Tuberculosis	388
Malaria	2,812	Typhoid fever	11
Measles	103	Whooping cough	115
Mumps	10		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of the quarantinable diseases appeared in the Public Health Reports for October 28, 1932, pp 2123-2136. A similar cumulative table will appear in the Public Health Reports to be issued November 25, 1932, and thereafter, at least for the time being, in the issue published on the last Friday of each month.)

Cholera

Philippine Islands.—During the week ended October 29, 1932, 8 cases of cholera with 5 deaths were reported in Samar Province, P. I.

Plague

On vessel.—A case of plague was reported September 7, 1932, on the S. S. *Taisan Maru*, en route from Tsingtao to Moji.

Yellow Fever

Senegal.—During the week ended October 22, 1932, 8 cases of yellow fever with 5 deaths were reported in Senegal.

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UNITED STATES TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

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UNITED STATES PUBLIC HEALTH SERVICE

Hugh S. Cumming, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. Williams, *Chief of Division*

The Public Health Reports are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of public health.

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CONTENTS

PUBLIC HEALTH REPORTS

VOL. 47 NOVEMBER 18, 1932 NO. 47

EPIDEMIOLOGICAL STUDY OF PLAGUE IN PERU

WITH OBSERVATIONS ON THE ANTIPLAGUE CAMPAIGN AND LABORATORY WORK[1]

By C. R. Eskey, *Surgeon, United States Public Health Service*

The Epidemiology of Plague in Peru

OCCURRENCE OF PLAGUE

Introduction and spread.—Following the introduction of plague into the port of Callao in 1903, the disease spread rapidly north and south along the west coast of South America infecting most of the principal ports of Peru and Chile within a period of two years. From the ports the disease invaded inland communities of Peru and finally reached its greatest height in 1908, or six years after its introduction. In the 28 years from 1903 to 1930 over 20,000 human cases were officially reported from 193 towns and an unknown number of small farm communities. With the exception of a few short-lived outbreaks, plague has been confined to the narrow strip of seacoast Provinces extending the entire length of Peru and to adjacent mountain Provinces north of 12° south latitude.

Character of human plague epidemics from north to south.—North and south of a central coastal zone extending from 7° to 13° plague has only occurred in seaports and the larger towns and has not invaded the small isolated rural communities. North of Paita, which is located at 5° 6′ south latitude, plague has never gained a firm foothold in even the larger Peruvian ports. The incidence of human plague has been very high in the infected towns of the northern sector. In the northern Department of Piura the disease spread very slowly between railroad towns. North of 7° the epidemics have been severe but have shown a marked tendency toward voluntary disappearance which has actually taken place in the coast Provinces of the Department of Piura. In the southern sector, or colder area, plague epidemics have been mild and of short duration in the few places that have been infected with the exception of Mollendo.

[1] Editor's Note.—This paper presents a summary of the most important parts of Surgeon Eskey's full report, which, owing to the length and the expense involved, could not be printed at this time.
The manuscript of the report was received for publication September 12, 1931.

In the central zone, where the mean monthly maximum temperatures of the warmer northern extremity rarely exceed 85° F., and the mean monthly minimum temperatures of the colder southern extremity are not below 55° F., plague has invaded the small isolated villages and small farming communities as well as the larger towns and cities. In the northern part of this zone the incidence of human plague has been greater both in the urban and rural communities than south of 9°. Plague has spread very rapidly in the central area and has shown a much greater persistence than in the zones north and south of it.

Plague in the mountain Provinces.—Plague has occurred only at high altitudes north of 12°. Some short, severe epidemics have been recorded at altitudes of over 9,000 feet above sea level in northern Peru. In the two mountain Provinces of the northern Department of Piura, plague has been continuously present among small isolated rural communities since 1922 and exists here absolutely independent of urban infection on the coast. Severe epidemics have been reported from towns and rural villages as far south as 8°, but south of the Department of Piura the prevalence of plague in the mountain Provinces appears to rise and fall with the epidemics on the coast. The epidemics south of 8° have been mild and plague has not been reported from haciendas located at high altitudes in this region.

Hacienda plague.—In the regions where plague has invaded haciendas, the disease has spread very rapidly from one point to another and has been very persistent. The morbidity rate has been greater on the haciendas than in the urban communities in the same districts. The greater prevalence of human plague has occurred on the haciendas of the Province of Trujillo, where sugarcane is the chief crop. In the southern part of the zone where plague has invaded haciendas, the incidence has been greatest in a valley where cotton is the only product, although the incidence has been quite high in regions where both cotton and sugarcane are raised. Very few cases have been reported from haciendas devoted to raising bananas and vegetables, and to dairy pastures. In the northern mountain Provinces and in the Province of Trujillo, plague infection of the rural districts is independent of any urban foci. In the northern and southern parts of the zone where plague occurs on haciendas, the rural cases follow the course of the urban epidemics; and it is probable that when the cities and towns of these regions are kept free from infection, the disease will disappear from the haciendas.

Course of human plague epidemics—The initial epidemics of plague have generally been much more severe than those occurring later in the same communities. Since plague reached its highest peak in 1908, the course of the annual epidemics has been irregular and without periodicity but has shown a general tendency toward reduced

Map showing coast towns and certain inland towns of Peru

severity in Peru as a whole and in its smaller political divisions. In urban communities where the initial epidemics were very severe, there has been a marked tendency toward voluntary disappearance. Reinfection has occurred in many communities and accounts for the more or less continued presence of the disease in a great many places. At Callao and Lima the initial epidemics were mild, but those of later years were more severe in comparison with the primary epidemics than in the towns of northern Peru. During the four years 1927-1930 the number of cases reported annually has only been about one-sixth as great as during 1908, although the infected towns reporting cases have been nearly as numerous as during the peak years, showing that there has been a much smaller number of cases from about the same number of foci.

Seasonal prevalence of human plague epidemics.—In all sections of Peru the annual plague epidemics tend to reach their greatest height during the summer months. Even when the winter temperatures of one community are about as high as the summer temperatures of another locality there is the same tendency in both places for the annual peak to occur during the summer months. The seasonal temperatures affect the curve of the annual epidemics to a certain degree, because, when the winter months are warm, the number of human cases begins to increase during the last winter month or early in the spring and reaches its highest point early in summer. In colder climates the annual rise does not begin until late in spring and the peak of the epidemics occurs late in summer. In the towns of northern Peru, where the morbidity rate has been high, there has been a more decided seasonal prevalence, because the epidemics have been short and violent; while at Callao and Lima there has been only a slight difference between the percentage of cases occurring during the summer and winter months.

Other factors besides the seasonal temperatures play a part in determining the seasonal prevalence of plague, for unseasonable epidemics have occurred in all parts of Peru, including Mollendo. Furthermore, the seasonal incidence of some rural communities is dependent on the crop seasons and varies considerably from that of towns in their immediate vicinity.

Effect of the annual climatic conditions on the prevalence of human plague.—In Lima and vicinity such changes as have been noted in the climatic conditions during the past 22 years have had no apparent effect one way or the other upon the number of human-plague cases reported annually. In the warmer northern section of Peru, particularly in the departments of Piura and Lambayeque, higher temperatures than normally occur probably reduce the prevalence of plague. The unusual rains of 1925 and 1926 were the cause of the widespread epidemic of 1926, which affected chiefly the small isolated communities in the northern mountain provinces and coast region.

RELATION OF RAT SPECIES TO PLAGUE

Species of rats.—*Rattus norvegicus, Rattus alexandrinus, Rattus rattus,* and *Mus musculus* were the only rodents found in urban communities. In the rural districts near Lima, *norvegicus, alexandrinus,* and a small grayish field rat were caught. A few wild reddish-brown rats were caught in the mountain foot-hills near Lima. No rodents other than those named above were found in the urban or rural sections.

With the exception of the port of Pacasmayo, where over 99 per cent of the rats caught were *norvegicus, alexandrinus,* and *rattus* were the predominating species caught in the towns of northern Peru. In the central and southern coastal area *norvegicus* greatly exceeded the other species, except at the southern port of Mollendo where *rattus* and *alexandrinus* predominated.

Rat harborage in relation to species of rats.—The buildings of the warmer northern section of Peru are so constructed for protection against heat and occasional rains that they afford much greater rat harborage than do the buildings of the central and southern parts of Peru. In two ports, Paita and Mollendo, practically all buildings are of wooden construction and are notoriously rat-infested.

R. alexandrinus and *R. rattus* were the predominating species of rats caught in localities where the buildings offered the greatest harborage.

The sewer system of Lima, the banks of irrigation ditches and rivers, untreated garbage dumps, fields of cotton, sugar cane, corn, bananas, and vegetables, and orchards were all found to be prolific breeding places for *R. norvegicus*. *R. alexandrinus* formed about 25 per cent of the rats caught in fields. Over 99 per cent of the rats caught in sewers were *norvegicus*, but over a hundred *alexandrinus* and *rattus* were caught in the sewers of Lima. The lack of heavy rains and the moderate temperatures of Peru favor a large exterior rat population, which is limited only by the food and water supply.

Relations of rat harborage and species to the prevalence of human plague.—With one exception the prevalence of human plague has been much greater in the communities where the buildings offer the greatest rat harborage and the predominating species were *R. alexandrinus* and *R. rattus*. In the case of the northern port of Pacasmayo the incidence of plague has been very high, although over 99 per cent of the rats caught here were *norvegicus*, thus demonstrating that human plague may be as readily contracted from this species as from the other two. There is no doubt that the extent of the rat infestation of buildings has determined the morbidity rate of plague in the different communities from north to south in Peru regardless of differences in climatic conditions. Both ports, Paita and Mollendo, have suffered from severe epidemics of plague, although they are located well out-

side of the zone in which the climatic conditions are most favorable for the spread of this disease. As previously stated, the buildings of both places are heavily rat-infested. The presence of a very large exterior rat population and infested sewers has apparently not increased the plague morbidity rate of Lima and vicinity, as the prevalence of the disease there has been much lower at Lima than at the less favorably situated ports of Paita and Mollendo.

The fact that only a few places south of 13° latitude have been infected with plague and that the disease has never gained a firm foothold in any of them except Mollendo, shows that if the buildings are relatively rat proof, this infection can not be much of a menace to any community where climatic conditions are not particularly favorable and the transmitting agent is the same as in Peru.

Relation of Mus musculus to human plague.—The finding of a dead plague-infected mouse in the sleeping quarters from which two cases of plague had been removed is presumptive evidence that *Mus musculus* may be the direct source of human plague. Mice may be especially dangerous to man, because they may contract the infection from rats that are located in out-of-the-way places where man would not come in contact with them and bring the infection directly into the living rooms.

Dissemination of plague by rats.—Plague has been disseminated through the mechanical transportation of the infecting agents by vessels and railroads and by the migration of infected rats from one point to another or by the disease spreading through rats in the fields.

The disease was spread much more rapidly by sea than by railroads, which would indicate that rats themselves on infested vessels were a much greater menace in the dissemination of plague than the transmitting flea.

The rapid and wide-spread invasion of sea ports at which vessels handle cargo only at anchor shows that more stringent measures are demanded to prevent the introduction of plague than simply keeping vessels away from contact with wharves.

Whenever plague first appears at ports where conditions are favorable for severe epidemics or whenever exacerbations occur of existing epidemics, all places having commercial relations with such ports should take special precaution to prevent the introduction of plague. It is at such times, as shown by the spread of plague from the port of Callao, that the danger of the infection of ships is especially great, due to the widespread infection among the rats which is liable to result in their migration to vessels.

Relation of the rat to the course of human plague epidemics.—Epidemiological data collected in Peru point to the conditions under which rats are harboring in the different communities and the effect of plague upon the rat population as being the factors which determine

the course of human plague epidemics. The severity and extent of the initial epidemics have depended upon the extent of the rat infestation of buildings and the size of the communities. The greater the interior rat infestation, the more violent have been the initial epidemics and the exacerbations or reinfections during the first few years of infection.

The reduced incidence of plague, particularly as observed in the mildness of reinfections, after a community has not been infected for a few years, can not be explained except by assuming that the rats harboring in buildings have developed a lessened susceptibility to infection. Where the incidence of human plague has been low, as at Lima, the disease persisted for many years before there was any great reduction in the number of cases occurring annually, which is probably due to the fact that the rats in the buildings are fewer in number, to the lack of immunity among them, and to the constant invasion of buildings by sewer and other rats from exterior harboring places which have not been exposed to infection to the extent that have rats in the buildings.

Breeding season of rats.—A survey of pregnant rats made during the autopsy examination at Lima showed that a much larger percentage of females were pregnant from December to May than in June, the last fall month, indicating that probably the majority of rats are born in the warm months and reach mating maturity during the following spring.

Relation of the rat to the seasonal prevalence of plague.—There is no positive evidence that the breeding season of rats influences the seasonal incidence of plague, but it is possible that the mingling of rats during their mating in the spring may account, in part at least, for the increase in the prevalence of plague which begins during this season. In the case of rural communities where cotton is grown, the seasonal incidence of plague depends almost entirely upon the migratory movement of rats. The severe epidemics of plague which have occurred during the most unfavorable seasons of the year in practically all communities, regardless of their climates, show that the transmitting agents may be active at any time of year.

RELATION OF FLEA SPECIES TO PLAGUE

Varieties of fleas.—The following species of fleas were encountered in Peru: *Xenopsylla cheopis, Leptopsylla musculi, Ceratophyllus londiniensis, Rhopalopsyllus cavicola, Ctenocephalus felis, Echidnophaga gallinacea, Sternopsylla texanus, Hectopsylla* sp., and *Rhopalopsyllus litargus.*

Distribution of X. cheopis.—*X. cheopis* was the most common flea found on rats throughout the entire coast area of Peru. A few of this species were taken from guinea pigs, dogs, cats, opossums, and man.

Relation of the harboring places of rats to the X. cheopis infestation.—The *X. cheopis* index was greater for rats caught in buildings or closely associated with buildings, in fields of cotton, sugarcane, and corn, and untreated garbage dumps. The infestation of the rats caught in the places named above was great enough to account for the spread of plague among them while the *X. cheopis* index of rats caught in sewers, along the banks of irrigation ditches and in orchards near Lima was lower than generally considered necessary for the propagation of plague epidemics. It appears probable that protected nesting places of rats in buildings, in untreated garbage dumps, and probably above-ground nests in fields, are necessary for the existence and multiplication of *X. cheopis* and that even in the climate of Lima, which is drier and more moderate than in most parts of the world, this species can not persist among sewer rats and rats living in underground burrows.

X. cheopis infestation of species of rats.—The *X. cheopis* index of the total *R. alexandrinus* and *R. rattus* caught was greater than that of *R. norvegicus*, but if the index is computed for only the rats which were found to be flea-infested, it will be found to be greater in the case of *R. norvegicus*.

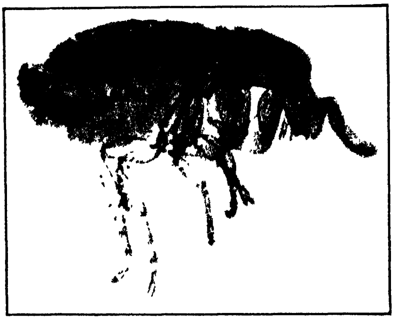
Relation of temperature to X. cheopis infestations.—In order to form any conclusion of value regarding the effect of climate or temperature upon the *X. cheopis* index it is necessary to compare the indices of rats caught in similar types of harboring places during the different months. As the exterior temperatures of Lima throughout the year are within the range required for the existence of *X. cheopis* the index can not be expected to vary greatly during the different seasons. During the warmer months there was apparently a slight reduction in the *X. cheopis* index which increased with the onset of colder weather in May. This reduction was probably due to the fleas spending less time on their hosts during the warmer months and not to an actual reduction in the number of *X. cheopis* in the community.

Relation of X. cheopis infestation to city zones.—No evidence was found indicating that the *X. cheopis* index varied within the different city zones which were devoted to commercial purposes or residences. When the majority of rats were caught within buildings the index was always high regardless of the nature of the city zone in which they were caught.

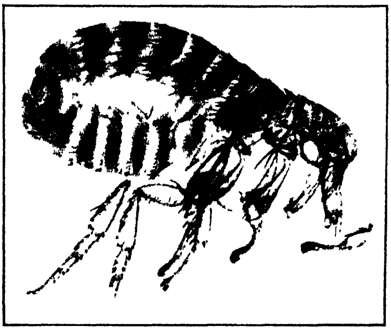
Percentage of X. cheopis females.—The data collected during this survey suggest that when 50 per cent or more of the *X. cheopis* found on rats are females the climatic conditions or the harboring places in which rats are caught are not as favorable to the existence of these fleas as when the percentage of females is below 50 per cent.

Rhopalopsyllus lutzi ... (male)

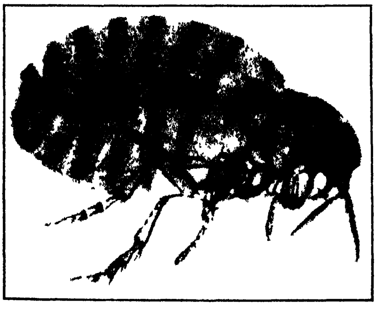
Rhopalopsyllus lutzi ... (female)



Rhopalopsyllus cavicola (male)

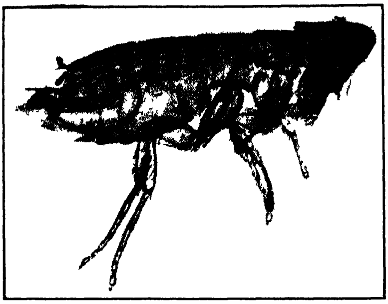


Rhopalopsyllus cavicola (female)
(From guinea pigs)

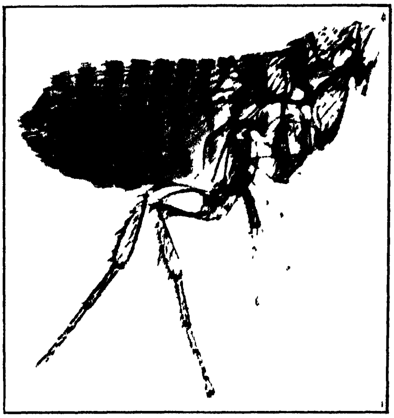


Hectopsylla sp (female, unfertilized form)

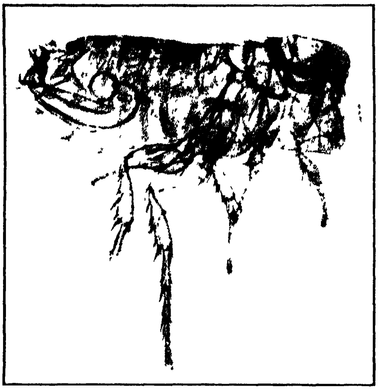
Hectopsylla sp (female, older form)



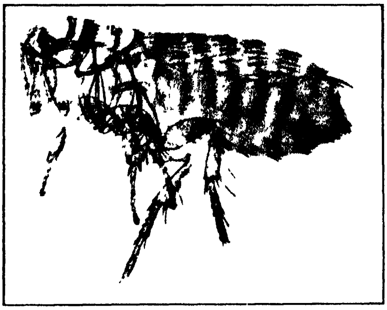
Leptopsylla musculi (male)



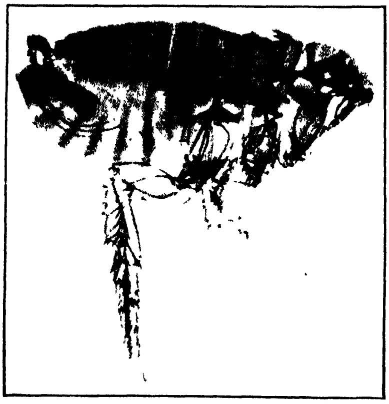
Leptopsylla musculi (female)



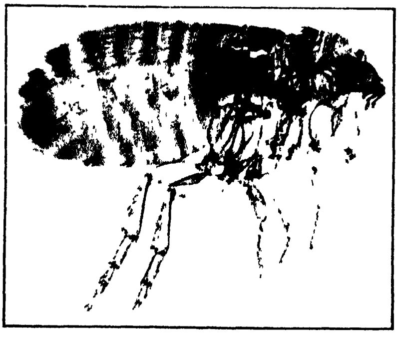
Ceratophyllus londiniensis (male)



Ceratophyllus londiniensis (female)



Ctenocephalus felis (male)



Ctenocephalus felis (female)

Length of life of unfed X. cheopis.—The average length of life of 14 unfed *X. cheopis* was found to be between four and five days when the mean temperature was 63.3° F. and the relative humidity very high. One unfed female did not die until between the seventh and eighth days.

X. cheopis infestation of Mus musculus.—The *X. cheopis* infestation of *Mus musculus* was lower than is considered to be required for the continuous transmission of plague among these animals, as only one *X. cheopis* was found to every five mice examined.

Relation of X. cheopis to plague in Peru.—As a result of the flea survey conducted at different points along the coast, and in view of the distribution of plague among the isolated rural communities or in the region in which the disease occurs among migratory field rats, and considering the fact that the disease has been confined to the warmer mountain provinces adjacent to the infected coast area, it can be reasonably concluded that *X. cheopis* is probably the only transmitting agent responsible for the continuous and severe epidemic of plague that has occurred in Peru since the introduction of the disease in 1903. It is possible but doubtful that some other agent is active in the transmission of plague in the mountain provinces.

Significance of the X. cheopis index.—In order for the *X. cheopis* index to have any significance in the epidemiology of plague it must be studied in connection (1) with the degree of interior rat infestation, (2) the source from which the rats are caught, and (3) the season of the year. Rats caught in buildings of communities located where climatic conditions, as determined by exterior temperatures, are unsuitable for the existence of *X. cheopis*, may have a higher index than those found in more favorably situated localities. The index may be high for a few rats caught within buildings in places such as Pisco, where plague has been unable to gain a firm foothold.

Relation of other parasites to plague.—Of the other parasites found on rats and mice in Peru only two, *Pulex irritans* and bed bugs, are believed to be agents which may possibly transmit human plague. Even though these two parasites may be accountable for some cases of human plague, the disease would not persist if it depended upon them alone.

SUMMARY

The greatest incidence of plague per thousand population in towns and cities in Peru occurred in the communities in which the rat harborage of buildings was greatest regardless of the climatic location of the towns within or outside the zone most favorable to the existence of the chief transmitting agent, *X. cheopis*. It is doubtful whether the low incidence or even complete absence of human plague due to relative rat-proof construction of buildings could be better illustrated

than by the findings in central and southern Peru. It is desired to emphasize that in most parts of the world where *X. cheopis* is the transmitting agent, plague could never exist in epidemic form if the buildings were so constructed and maintained that the rat population within them was reduced to a minimum. There are few countries in which lack of rainfall, high humidity, and moderate temperatures furnish as favorable conditions for the existence of *X. cheopis*, and also exterior harborage of rats, as are found in Peru, yet even the relative rat-proof construction of buildings here has reduced and prevented the establishment of plague in many coast towns.

Notes on the Antiplague Campaign in Peru and Laboratory Work

INTRODUCTION

The discussion of the epidemiology of plague in Peru has shown that the complete eradication of plague from that country will be difficult to accomplish. The problem presented in antiplague work where the infection is confined to towns and cities is much simpler than that connected with the eradication of plague from among rats that infest the fields. In urban areas some idea may be gained regarding the location of infected foci by catching infected rats and through human cases reported. In fighting the disease among rats that migrate in accordance with crop seasons, immense areas have to be covered, because it is impossible to tell just where the disease is smouldering. The presence of human cases on an hacienda indicates that the rats in that vicinity are infected, but there is no means of telling in what other directions the disease is spreading until another hacienda is invaded.

In certain sections of Peru where plague spreads through migratory rats it should be possible to keep the number of human cases in the towns and haciendas at a very low figure by constant work, but the disease can not be completely conquered until it has been eradicated from the reservoir among the migratory rats. In other areas it will probably disappear from the field rats if the urban centers are kept free from infection for some time so that the rats can not carry the disease back and forth in their migrations.

The presence of a large exterior rat population, such as that found in the sewers and along the irrigation ditches of Lima, which has probably been more or less immune to the spread of plague because of their slight *X. cheopis* infestation, is believed to complicate the eradication of the infection as well as prolonging the disease. When these animals leave their natural hiding places and invade buildings where infected fleas are present, they easily succumb to the disease, thus prolonging its existence.

ORGANIZATIONS AND METHODS EMPLOYED

The organization of personnel and methods employed in the antiplague campaign in Peru were practically the same as those used in Ecuador during 1929 and 1930, so that they will be discussed very briefly.

The antiplague campaign was carried out under the direction of Medical Director John D. Long, of the United States Public Health Service. All personnel were trained at Lima before being sent to outlying Provinces. Assistant epidemiologists were stationed in the principal ports to supervise the trapping and poisoning of rats, to collect fleas, and to inoculate guinea pigs with material from the rats caught each day in order to determine the presence of infection in each place. Poison was relied upon to reduce the rat population, and trapping was instituted because of the value of the information thus obtained regarding the presence of plague and the flea infestation of rodents. The number of rats caught was not large except at Lima, where over 25,000 were caught. All towns and most of the haciendas were poisoned from one to four times in the districts where plague had been reported during the preceding five years. Certain mountain communities were not treated. Over 70 tons of poison put up in small paper packages was distributed in over 100 towns and their surrounding haciendas.

Arsenic used in paper packages with various sorts of bait has continued to be effective in the destruction of rodents and free from danger of accidental poisoning. Not a single instance of human poisoning was reported, and only a few domestic animals were alleged to have been killed by arsenic. Care must be exercised in the distribution of poison made with corn or other cereals where there are calves, burros, pigs, chickens, and other domestic animals.

RESULTS OBTAINED UP TO JUNE 30, 1931

Active antiplague measures began at Lima and Callao in November, 1930, and in other Provinces during the following December and January. The time which has elapsed since the institution of the work is too short to make any definite statements regarding the permanency of the results obtained or what can be expected from its continuation. Certainly the complete eradication of plague from a country in which the disease has so many ramifications and is so firmly established as in Peru can not be expected in a few months.

If the reduction which has taken place in the number of human cases reported since the campaign began is an index of its effectiveness, it must be conceded that the results obtained in the first six months of 1931 have been very good. There were only 97 cases of plague reported in 1931 from January to June, inclusive, or during the season

when the disease reaches its highest annual peak. This number is the smallest ever recorded during a similar period and about 45 per cent less than that reported in the first six months of 1927, when the incidence was the lowest ever previously reported. In December, 1930, there were 78 cases of plague; and instead of the usual seasonal increase occurring during the first months of 1931, there was a very marked reduction in the prevalence of the disease.

The incidence of plague in Lima was most certainly reduced by the measures instituted, but the disease had not been completely eradicated by June, as shown by the occurrence of three cases in a small section of the city near the large central market. The fact that there was no evidence of plague among over 7,000 rats autopsied from March 15 to June 15, and that no human cases were reported during the same period, might be considered evidence that the recent cases were due to a reinfection of the city from an outside source. The presence of a case of plague on a hacienda not far from the infected part of Lima rather supports the idea that reinfection might have come from rats returning to the city shelter with the onset of the damp cool weather in June.

In conclusion it can be stated that there has been a great reduction in the incidence of plague in Peru since the beginning of the antiplague campaign and that the use of poison for the destruction of rats has apparently yielded very good results. Peru is not yet free from plague; the work has only begun, and it must be continued for a long time to attain permanent results. The disease will probably reappear in many places that are free from infection now should the work cease or become lax. Whether or not plague can be entirely eliminated from the migratory rats in the rural districts within a reasonable time remains to be demonstrated.

STATUS OF PLAGUE IN PORTS

The last case of human plague reported from a Peruvian port was recorded at Huacho in March, 1930, and there have been no infected rats caught at the principal ports where assistant epidemiologists are stationed since the same month. The last human case reported at Callao, the principal port, was notified in May, 1930, or over a year ago. About 5,000 rats, that were caught at Callao from November, 1930, to June 30, 1931, were inspected at the laboratory in Lima without finding a single one plague-infected. Callao is the only port at which vessels go alongside of wharves in Peru.

Most Peruvian ports are surrounded by arid, barren territory, and so the presence of plague among rats in the fields is not as great a menace to them as to the towns which are situated in the irrigated districts.

FEEDING AND POISONING EXPERIMENTS

Many combination feeding and poisoning experiments using about 40 *R. norvegicus* caught in sewers were carried out at the laboratory to determine what local inexpensive substance would be most effective as a bait for poisoning rats. The details of these experiments are too long for complete discussion so that only some of the conclusions will be noted here.

Hungry rats will eat almost anything; but when there is a variety of food available, they are very selective in their choice. Therefore, an effective poison must be one that rats will eat when there is other food at hand. In all feeding and poisoning experiments, from seven to nine different combinations of substances were used at one time besides the ones experimented upon. The foods were put up in small marked paper packages of the same type as that used for poison throughout the plague campaign. Rats almost invariably selected and opened packages containing rice and corn first. Many would eat only these two cereals when they were present. The addition of ground dried fish, cheese, shrimp, anise oil, and other substances used for the purpose of attracting rats were found to be of no value whatsoever. It was finally decided that plain cornmeal was the best inexpensive bait that could be obtained in Lima for mixing with arsenic in making rat poison. Rats preferred coarse corn to very fine corn flour; therefore the cornmeal should be ground as coarse as possible and yet mix with arsenic.

It is believed that prior to the use of poison in any community a few rats should be caught and fed mixtures of the different cheap foods that can be purchased in the local market. In this way a better decision can be made regarding the foods most suitable for poison mixtures. Each rat should be fed in a separate compartment or cage.

Thirty rats were killed with arsenic. The length of life depended more or less upon the amount of poison consumed. Some rats died in less than 24 hours after eating about one-tenth of a poison package. Only eight rats died in less than 24 hours. One that ate three poison packages died in three hours. Twenty-three rats died in less than four days. One rat did not die until the 18th day after taking poison. Autopsy of this animal showed the pathology of arsenic poison. Six rats apparently recovered after being sick a few days.

Many of the poisoned rats were very vicious when sick and would attack anything placed in their jars. It is possible that this symptom of arsenic poisoning is of value in antiplague work. Many people have reported that they have observed rats chasing each other about, even in the daytime, and others have noted a great disturbance among rats in double walls after the distribution of poison. It seems that the sick aggressive rats may chase the other rats away from their usual flea-infested hiding places and cause them to seek new ones,

thus reducing their flea infestation. The vicious rats may also kill other rats.

ARSENIC POISONING OF EMPLOYEES

In Guayaquil, Ecuador, large quantities of arsenic were made into poison mixtures without any ill effects being noted among those working with it. But, at Lima, during the first four months there was constant disability among those connected with the mixing of the poison and preparation of the small paper packages. Individuals that had small cuts on their hands would develop indolent ulcers and many were incapacitated by large areas of pustules which affected almost any part of the body, but were most severe in the axilla and inguinal regions because of the more profuse perspiration. Both the ulcers and pustules would disappear in a few days when the individuals were removed from their exposure to arsenic. No fatal or serious cases of poisoning occurred.

In April a purer arsenic, one containing less than 1 per cent of impurities, was purchased, and following its use there was no trouble with dermatitis until another shipment of the impure arsenic arrived. The impure arsenic was a dark gray, Japanese product. It was found more suitable for mixing with bait because it was more adherent than was the pure white arsenic, which tended to settle out. The adherent property of the impure arsenic was probably the cause of so much dermatitis and special precautions are necessary when it is used.

HANDLING DEAD RATS

Trappers were furnished with small metal boxes with tightly fitting caps in which they collected their dead rats. At the doorway of the laboratory they emptied the contents of their boxes into a large flat pan containing about one-half inch of cresol solution. The rats were classified while in the pan and then thoroughly dipped in a large can filled with 5 per cent cresol solution. There are a great many fleas on rats caught in snap traps and brought to the laboratory dead, but after this treatment they are not dangerous. Some fleas may struggle off the rats onto the boards to which the rats are tacked, but they soon die and none were ever observed to jump.

AUTOPSY INSPECTION OF RATS

The rats were tacked to boards which were given the number of the trappers' district where the rats were caught. For making the macroscopical examinations a complete exposure was made of the thoracic and abdominal vicera, and the skin was dissected back exposing the cervical, axillary, and inguinal gland areas. Although a careful inspection was made of every rat autopsied, only one suspicious rat was detected, which was proved to be plague-infected by

guinea pig inoculation. This rat had enlarged congested inguinal glands, but no other macroscopical evidence of plague. The microscopical examination of the gland smear showed the presence of suspicious organisms, but none was found in smears from the spleen and liver.

The daily inspection was checked by a mass inoculation into a guinea pig of an emulsion made from small pieces of spleens and livers collected from all autopsied rats. Four guinea pigs died of plague as a result of these inoculations. The condition had not been detected at autopsy inspection. It is believed essential that daily mass inoculations be made if the work of a plague laboratory is done thoroughly.

CHRONIC PLAGUE

There was absolutely no pathology observed among autopsied rats to indicate the presence of the condition known as chronic plague. It was not uncommon to find rats with rather thick adhesions between the stomach and spleen and the abdominal wall. At first it was thought that these adhesions were possibly the result of an old plague infection, but one of the rats that died of experimental plague had this pathology.

CARE OF PLAGUE-INOCULATED GUINEA PIGS

During the nine months of this investigation many guinea pigs infected with plague were handled at the laboratory. The animals were kept in open glass jars 11 inches in diameter and 16 inches deep. No cover was placed over the jars, and the only precaution taken to prevent the escape of fleas was a band of ordinary axle grease about 2 inches wide on the inside of the top of the jars. The guinea pigs did not escape from the jars, nor was there any infection of other guinea pigs in close proximity that could in any way be assigned to fleas passing from one animal to another. The guinea pigs were kept under observation for 14 days.

AN ATYPICAL CASE OF PLAGUE AND AN UNUSUAL REACTION OF A PLAGUE-INFECTED GUINEA PIG

About June 16, 1931, a Japanese was taken sick with fever and pain in one inguinal region. He remained at his home for a few days; then, upon the advice of a friend, he went to Callao for treatment at a hospital. He was not well but was able to walk about fairly comfortably. The physician who saw him at Callao sent him to the plague hospital in Lima. He was visited the next day, and upon examination he was found to have an ulcer on the frenum of the penis and an enlarged, somewhat tender, softening inguinal gland. He did not appear to be very sick and his temperature was only 38.3° C. A smear

was made from the softening area of the inguinal gland and a guinea pig was inoculated by hypodermic injection. Microscopical examination of the smear revealed a few suspicious plague-like organisms, but even then the case was thought to be venereal.

June 25, 1931, another Japanese was sent to the plague hospital from the same room as that occupied by the first one. This case was more typical of plague. A guinea pig was inoculated and bipolar organisms were found in the smear from the enlarged glands.

June 26, 1931, a dead mouse found in the room occupied by the two Japanese was brought to the laboratory. Smears from the spleen and liver of the mouse showed many typical coccobacilli. A guinea pig was also inoculated through the shaved skin.

The guinea pigs inoculated from the second case and the mouse died between the third and fourth days of plague. The guinea pig inoculated from the first Japanese appeared to be sick for several days. As there were no indications that it would die, it was killed on the tenth day because of the positive findings in the other case. Autopsy revealed the following macroscopical pathology: There was an abscess the size of a large bean at the site of the hypodermic inoculation. The glands in both inguinal regions were enlarged, somewhat hemorrhagic in appearance, matted together, and some pus was present in them. The liver was greatly enlarged and contained numerous small, yellowish white, slightly raised abscesses, somewhat larger than a pin head. The spleen was slightly enlarged, rough in appearance, and also contained many small abscesses similar to those found in the liver, as well as a larger abscess about the size of a pea. A number of slides were prepared from the liver, spleen, and glandular masses. In one smear from the spleen three or four suspicious organisms were found. The remainder of the slides were all negative. Macroscopically this guinea pig appeared to be plague-infected, but the microscopical findings were too indefinite for a positive diagnosis. Two other guinea pigs were inoculated and both were found to be plague-infected. One of these animals was killed the third day after inoculation and coccobacilli were found in the inguinal glands but not in the liver and spleen. In this connection it is desired to mention that *Bacillus pestis* have been recovered in large numbers from the glands of a guinea pig 24 hours after inoculation.

The first human case illustrates how closely an ambulatory case of plague may simulate venereal inguinal adenitis, especially with a venereal ulcer present. If it had not been for the second case and the infected mouse, the guinea pig inoculated from the first case would not have been killed as it was and probably would have recovered. It seems that the best procedure would be to kill all inoculated guinea pigs on the sixth or seventh day after inoculation, especially if they

have shown any signs of sickness. If this guinea pig had been killed sooner, there would probably have been an abundance of typical organisms in all smears.

Acknowledgments

It is desired to express thanks and acknowledge the great assistance rendered in the collection of the data contained in this report by Dr. Benjamin Mostajo, Dr. Nicholas E. Cavassa, and the staff of the laboratory.

DEATHS DURING WEEK ENDED OCTOBER 29, 1932

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Oct. 29, 1932	Corresponding week, 1931
Data from 85 large cities of the United States:		
Total deaths	7,249	7,512
Deaths per 1,000 population, annual basis	10.3	10.9
Deaths under 1 year of age	487	609
Deaths under 1 year of age per 1,000 estimated live births [1]	40	47
Deaths per 1,000 population, annual basis, first 43 weeks of year	11.1	11.9
Data from industrial insurance companies:		
Policies in force	70,081,265	74,425,301
Number of death claims	12,742	11,828
Death claims per 1,000 policies in force, annual rate	9.5	8.3
Death claims per 1,000 policies, first 43 weeks of year, annual rate	9.6	9.7

[1] 1932, 81 cities; 1931, 77 cities.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended November 5, 1932, and November 7, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended November 5, 1932, and November 7, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Nov. 5, 1932	Week ended Nov. 7, 1931	Week ended Nov. 5, 1932	Week ended Nov. 7, 1931	Week ended Nov. 5, 1932	Week ended Nov. 7, 1931	Week ended Nov. 5, 1932	Week ended Nov. 7, 1931
New England States								
Maine	2	5	4	2	2	171	0	0
New Hampshire		8				15	0	0
Vermont		12			1	66	0	0
Massachusetts	29	61	4	4	56	62	1	6
Rhode Island	4	11				105	1	0
Connecticut	6	5		4	2	12	0	0
Middle Atlantic States								
New York	56	68	[1] 6	[1] 5	241	145	7	8
New Jersey	34	34	9	5	74	19	3	1
Pennsylvania	93	104			124	205	2	4
East North Central States:								
Ohio	95	164	18	13	88	50	0	1
Indiana	64	94	36	1	9	74	3	0
Illinois	114	172	10	8	54	30	4	3
Michigan	25	63	10		158	21	0	7
Wisconsin	11	30	18	14	87	14	0	3
West North Central States:								
Minnesota	12	14	2	3	48	8	0	3
Iowa	25	10	5		4	5	0	3
Missouri	105	94		14	3	7	0	3
North Dakota	2	3			31	2	0	0
South Dakota	2	4	1		3	2	1	1
Nebraska	37	18		8	1	12	0	0
Kansas	35	112	1	3	10	24	1	0
South Atlantic States.								
Delaware	8	33					0	0
Maryland [2]	26	47	8	10	1	3	2	1
District of Columbia [3]	8	13			1	1	0	0
Virginia	62				34		0	
West Virginia	40	95		22	29	106	1	1
North Carolina [3]	96	237	8	25	96	60	1	2
South Carolina	25	39	401	289	4	17	0	0
Georgia [3]	88	56		57	2	5	0	1
Florida [3]	25	32	1	1	1	7	0	0
East South Central States:								
Kentucky	86	219	85		37		3	1
Tennessee	101	151	41	31	5	3	0	2
Alabama	70	134	34	9	1	4	0	1
Mississippi	41	104					1	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended November 5, 1932, and November 7, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Nov. 5, 1932	Week ended Nov. 7, 1931	Week ended Nov. 5, 1932	Week ended Nov. 7, 1931	Week ended Nov. 5, 1932	Week ended Nov. 7, 1931	Week ended Nov. 5, 1932	Week ended Nov. 7, 1931
West South Central States:								
Arkansas	40	82	21	17	2		0	0
Louisiana [3]	38	36	9	10	2	15	0	1
Oklahoma [4]	105	137		22	1	4	3	0
Texas	175	84	59	11	4	11	0	1
Mountain States:								
Montana		2			79	71	0	0
Idaho	3	2					0	0
Wyoming					2	1	0	0
Colorado	14	4			9	4	1	0
New Mexico	26	21	275				1	0
Arizona	4	12	21		4		0	0
Utah [2]	1		4	4			0	0
Pacific States:								
Washington	4	13		4		38	0	1
Oregon	3	3	32	43	25	5	1	0
California	66	106	358	41	27	168	2	2
Total	1,906	2,748	1,481	680	1,362	1,572	39	57

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Nov. 5, 1932	Week ended Nov. 7, 1931	Week ended Nov. 5, 1932	Week ended Nov. 7, 1931	Week ended Nov. 5, 1932	Week ended Nov. 7, 1931	Week ended Nov. 5, 1932	Week ended Nov. 7, 1931
New England States:								
Maine	7	5	15	32	0	0	6	5
New Hampshire	0	0	20	7	0	0	0	0
Vermont	0	4	3	11	0	22	0	0
Massachusetts	0	19	206	195	0	0	4	4
Rhode Island	0	0	29	16	0	0	0	0
Connecticut	0	17	54	27	0	0	4	4
Middle Atlantic States:								
New York	5	74	294	336	3	19	17	28
New Jersey	6	15	121	113	0	0	5	4
Pennsylvania	20	17	356	318	0	0	36	61
East North Central States:								
Ohio	4	4	419	335	22	11	19	39
Indiana	0	3	103	113	1	9	4	3
Illinois	4	33	315	287	1	19	19	14
Michigan	1	22	201	160	0	2	12	11
Wisconsin	1	23	78	71	3	0	4	3
West North Central States:								
Minnesota	3	30	44	41	2	2	1	0
Iowa	0	10	27	42	7	49	1	4
Missouri	0	3	153	92	0	3	7	13
North Dakota	1	3	4	10	2	12	1	5
South Dakota	1	2	6	6	0	2	0	2
Nebraska	0	0	45	26	0	3	5	2
Kansas	1	1	84	70	0	2	5	0
South Atlantic States:								
Delaware	0	0	6	7	0	0	0	2
Maryland [3]	4	2	77	78	0	0	7	30
District of Columbia [3]	1	0	11	22	0	0	2	5
Virginia	1	2	101		0		14	
West Virginia	1	1	70	98	0	0	27	32
North Carolina [3]	3	6	115	195	0	2	11	22
South Carolina	1	1	18	17	0	1	8	10
Georgia [3]	0	0	16	43	0	0	19	16
Florida [3]	0	0	1	4	0	0	1	4
East South Central States:								
Kentucky	1	1	74	90	3	6	23	42
Tennessee	4	1	99	93	1	6	18	33
Alabama	0	0	54	53	0	0	11	19
Mississippi	1	2	46	43	2	10	5	12

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended November 5, 1932, and November 7, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Nov. 5, 1932	Week ended Nov. 7, 1931	Week ended Nov. 5, 1932	Week ended Nov. 7, 1931	Week ended Nov. 5, 1932	Week ended Nov. 7, 1931	Week ended Nov. 5, 1932	Week ended Nov. 7, 1931
West South Central States:								
Arkansas	1	0	19	48	0	7	13	15
Louisiana [3]	0	2	26	23	0	1	8	18
Oklahoma [4]	1	0	34	30	0	9	18	29
Texas	1	0	64	48	2	0	16	17
Mountain States:								
Montana	0	1	4	17	3	1	3	2
Idaho	0	0	3	4	8	0	2	1
Wyoming	0	0	17	5	0	0	0	0
Colorado	1	0	46	23	0	0	1	18
New Mexico	0	0	11	10	0	0	1	9
Arizona	0	0	6	9	0	1	3	5
Utah [2]	0	0	10	12	0	0	0	0
Pacific States.								
Washington	2	2	21	58	2	10	9	3
Oregon	1	0	25	16	0	5	5	4
California	5	3	119	123	5	7	8	5
Total	83	309	3,670	3,486	67	221	383	555

[1] New York City only.
[2] Week ended Friday.
[3] Typhus fever, week ended Nov. 5, 1932, 19 cases, 1 case in District of Columbia, 1 case in North Carolina, 15 cases in Georgia, 1 case in Florida, and 1 case in Louisiana
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
August, 1932										
Hawaii Territory		13	1,070		1		0	1	0	1
Puerto Rico		54	4,097	3,571	193	2	0		0	9
September, 1932										
Kansas	1	85	5		23		9	196	0	37
Nevada					1		0	3	0	0
Wisconsin	3	48	80		104		8	106	4	21
October, 1932										
Arkansas		169	115	256	10	48	3	116	0	56
Connecticut	2	13	13		26		3	130	0	11
Florida		83	10	24	5	3	2	30	0	10
Iowa	3	97			7		7	164	11	41
Nebraska	1	135	10		21		8	174	13	4

August, 1932

	Cases
Chicken pox:	
Hawaii Territory	8
Puerto Rico	36
Colibacillosis:	
Puerto Rico	4
Conjunctivitis, follicular:	
Hawaii Territory	2
Dysentery:	
Puerto Rico	18
Filariasis:	
Puerto Rico	8
Hookworm disease:	
Hawaii Territory	18
Impetigo contagiosa:	
Hawaii Territory	1
Leprosy:	
Hawaii Territory	4
Puerto Rico	3
Mumps:	
Hawaii Territory	2
Puerto Rico	16
Ophthalmia neonatorum:	
Puerto Rico	5
Plague:	
Hawaii Territory	1
Puerperal septicemia:	
Puerto Rico	10
Tetanus:	
Puerto Rico	6
Tetanus, infantile:	
Puerto Rico	33
Trachoma:	
Hawaii Territory	1
Puerto Rico	4
Undulant fever:	
Hawaii Territory	1
Whooping cough:	
Hawaii Territory	11
Puerto Rico	105
Yaws:	
Puerto Rico	3

September, 1932

	Cases
Botulism:	
Kansas	1
Chicken pox:	
Kansas	47
Wisconsin	184
German measles:	
Kansas	11
Wisconsin	14
Impetigo contagiosa:	
Kansas	1
Lethargic encephalitis:	
Wisconsin	2
Mumps	
Kansas	40
Wisconsin	69
Paratyphoid fever:	
Kansas	1
Ptomaine poisoning.	
Kansas	1
Scabies.	
Kansas	2
Septic sore throat:	
Kansas	3
Tetanus	
Kansas	4
Tularæmia.	
Nevada	1
Wisconsin	2
Undulant fever	
Kansas	7
Wisconsin	2
Vincent's angina:	
Kansas	4
Whooping cough:	
Kansas	74
Nevada	2
Wisconsin	469

October, 1932

	Cases
Chicken pox	
Arkansas	14
Connecticut	135
Florida	2
Iowa	207
Nebraska	88
German measles:	
Iowa	2
Hookworm disease:	
Arkansas	4
Connecticut	1
Impetigo contagiosa:	
Iowa	10
Lead poisoning:	
Connecticut	1
Lethargic encephalitis:	
Iowa	1
Mumps:	
Arkansas	54
Connecticut	156
Florida	1
Iowa	27
Nebraska	29
Ophthalmia neonatorum:	
Arkansas	1
Connecticut	1
Rabies in animals:	
Connecticut	4
Septic sore throat.	
Connecticut	3
Iowa	3
Nebraska	11
Tetanus	
Connecticut	1
Trachoma:	
Arkansas	3
Tularæmia	
Florida	1
Typhus fever:	
Connecticut	1
Florida	1
Undulant fever.	
Connecticut	1
Florida	1
Iowa	3
Whooping cough:	
Arkansas	23
Connecticut	194
Florida	24
Iowa	34
Nebraska	25

WEEKLY REPORTS FROM CITIES

City reports for week ended October 29, 1932

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine											
Portland	0		1	0	1	1	0	1	0	3	24
New Hampshire:											
Concord	0		0	0	0	0	0	0	0	0	9
Nashua	0		0	0	0	0	0	1	0	0	
Vermont:											
Barre	0		0	0	0	0	0	0	0	0	2
Burlington	0		0	1	0	1	0	0	0	0	12
Massachusetts:											
Boston	4	1	0	11	11	49	0	8	1	33	189
Fall River	1	1	0	0	0	7	0	1	6	2	24
Springfield	4		0	0	1	7	0	2	0	1	34
Worcester	3		0	0	6	9	0	3	1	0	55
Rhode Island:											
Pawtucket	0		0	0	1	0	0	0	0	0	13
Providence	4		0	0	1	8	0	1	0	3	61
Connecticut:											
Bridgeport	2		0	4	4	4	0	0	0	2	30
Hartford											
New Haven	0	1	0	0	5	5	0	0	0	6	40
New York:											
Buffalo	3		0	1	11	21	0	4	0	19	114
New York	15	14	6	46	100	54	0	77	10	96	1,303
Rochester	2		0	2	5	9	0	0	0	1	53
Syracuse	0		0	2	1	6	0	0	1	5	40

City reports for week ended October 29, 1932—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
New Jersey:											
Camden	9	-------	0	0	2	1	0	0	0	7	20
Newark	1	3	0	7	3	4	0	5	1	12	93
Trenton	3	-------	0	0	3	15	0	1	1	9	28
Pennsylvania:											
Philadelphia	7	3	2	2	18	36	0	18	4	11	401
Pittsburgh	13	1	1	0	19	40	0	7	3	18	145
Reading	1	-------	0	11	1	2	0	1	0	4	29
Scranton	2	-------	-------	2	-------	4	0	-------	0	11	-------
Ohio:											
Cincinnati	5	-------	0	0	6	16	0	2	1	1	108
Cleveland	5	44	0	1	10	37	0	11	2	21	174
Columbus	9	2	2	44	1	24	0	1	0	0	47
Toledo	5	1	1	2	3	29	0	5	1	3	57
Indiana:											
Fort Wayne	10	-------	1	0	0	1	0	0	0	0	18
Indianapolis	6	-------	0	0	8	15	0	2	1	5	-------
South Bend	0	-------	0	0	2	6	0	0	0	0	13
Terre Haute	0	-------	0	2	1	2	0	0	1	0	15
Illinois:											
Chicago	17	2	2	23	33	94	0	41	2	26	601
Springfield	4	1	0	2	0	12	0	3	0	0	16
Michigan:											
Detroit	11	1	0	24	9	44	0	18	0	69	194
Flint	1	3	1	0	1	5	0	1	0	3	23
Grand Rapids	0	-------	0	1	2	2	0	1	0	22	26
Wisconsin:											
Kenosha	0	-------	0	0	0	2	0	0	0	0	4
Madison	2	-------	-------	1	-------	0	0	-------	0	0	-------
Milwaukee	2	1	1	3	2	5	0	4	0	17	92
Racine	0	-------	0	0	0	0	0	1	0	3	7
Superior	1	-------	0	0	0	1	0	0	0	0	13
Minnesota:											
Duluth	0	-------	0	0	2	3	0	0	0	0	17
Minneapolis	2	-------	0	12	6	12	0	2	4	3	89
St. Paul	2	-------	0	0	7	11	0	4	1	17	64
Iowa.											
Des Moines	15	-------	-------	0	-------	8	0	-------	0	0	45
Sioux City	5	-------	-------	0	-------	0	1	-------	0	0	-------
Waterloo	0	-------	-------	1	-------	0	0	-------	0	2	-------
Missouri·											
Kansas City	8	-------	0	3	5	21	0	4	0	2	74
St. Joseph	7	-------	0	2	1	4	0	1	0	1	19
St. Louis	29	-------	0	2	4	25	0	4	8	2	193
North Dakota·											
Fargo	0	-------	0	0	1	0	0	0	0	0	3
Grand Forks	0	-------	0	15	0	0	0	0	0	0	-------
South Dakota·											
Aberdeen	0	-------	0	0	0	0	1	0	0	0	-------
Nebraska											
Omaha	17	-------	0	0	4	18	0	1	0	1	47
Kansas.											
Topeka	1	-------	0	3	2	7	0	1	0	1	16
Wichita	0	-------	0	0	1	5	0	2	0	0	24
Delaware·											
Wilmington	0	-------	0	1	2	5	0	0	0	5	27
Maryland:											
Baltimore	2	-------	1	2	14	26	0	12	2	25	189
Cumberland	0	-------	0	0	1	2	0	0	0	0	9
Frederick	0	-------	0	0	0	1	0	0	0	0	4
District of Columbia.											
Washington	2	1	0	0	9	17	0	6	1	4	158
Virginia:											
Lynchburg	4	-------	0	0	0	0	0	1	0	2	10
Richmond	1	-------	0	0	2	8	0	3	0	6	88
Roanoke	8	-------	0	0	1	2	0	0	5	0	11
West Virginia:											
Charleston	2	-------	0	0	3	0	0	0	2	5	13
Huntington	3	-------	0	3	0	6	0	0	0	0	-------
Wheeling	1	-------	0	18	3	1	0	2	0	3	22
North Carolina:											
Raleigh	1	-------	0	1	2	5	0	0	0	0	17
Wilmington	5	-------	0	0	1	7	0	1	1	0	14
Winston-Salem	2	-------	0	0	3	2	0	1	0	0	10

City reports for week ended October 29, 1932—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
South Carolina:											
Charleston	0	4	0	0	4	0	0	2	1	0	15
Columbia	5	--------	0	0	3	1	0	1	0	1	29
Greenville	0	--------	0	0	0	0	0	0	0	0	0
Georgia:											
Atlanta	14	1	1	0	4	9	0	3	0	5	85
Brunswick	0	--------	0	0	1	1	0	0	0	0	5
Savannah	6	--------	0	0	2	1	0	1	6	0	40
Florida:											
Miami	0	--------	0	0	2	0	0	2	0	0	20
Tampa	3	1	1	0	0	1	0	1	0	0	19
Kentucky:											
Covington	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------
Lexington	1	1	0	1	1	3	0	0	2	0	14
Louisville	6	6	0	0	11	6	0	1	0	0	80
Tennessee:											
Memphis	18	--------	1	0	5	5	0	8	4	1	87
Nashville	2	--------	3	0	4	5	0	1	0	0	64
Alabama:											
Birmingham	13	2	0	0	3	9	0	1	0	0	54
Mobile	3	--------	0	0	3	0	0	1	0	0	17
Montgomery	4	--------	--------	0	--------	2	0	--------	0	2	--------
Arkansas:											
Fort Smith	0	--------	--------	0	--------	1	0	--------	3	0	--------
Little Rock	1	--------	0	2	3	1	0	0	0	0	5
Louisiana:											
New Orleans	13	1	1	1	10	5	0	5	2	1	128
Shreveport	1	--------	0	0	0	2	0	2	0	0	31
Oklahoma:											
Muskogee	0	--------	0	0	0	1	0	0	0	0	--------
Tulsa	5	--------	0	0	0	5	0	0	1	0	--------
Texas:											
Dallas	45	2	1	0	3	8	0	4	1	0	58
Fort Worth	11	--------	0	0	4	8	0	1	0	0	27
Galveston	1	--------	0	0	2	0	0	0	0	0	16
Houston	14	--------	0	0	5	3	0	6	0	0	59
San Antonio	3	1	1	0	4	2	0	6	0	0	47
Montana:											
Billings	0	--------	0	0	0	0	0	0	1	0	7
Great Falls	0	--------	0	7	1	0	0	0	1	0	8
Helena	0	--------	0	0	0	0	0	0	0	0	7
Missoula	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------
Idaho:											
Boise	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------
Colorado:											
Denver	1	--------	2	1	9	14	0	6	0	2	84
Pueblo	0	--------	0	1	0	2	0	1	0	5	7
New Mexico:											
Albuquerque	1	--------	1	0	2	2	0	6	1	0	23
Arizona:											
Phoenix	0	--------	0	0	0	2	0	2	0	0	--------
Utah:											
Salt Lake City	0	--------	0	0	3	0	0	0	1	0	31
Nevada:											
Reno	0	--------	0	0	1	0	0	0	0	0	2
Washington:											
Seattle	0	--------	--------	0	--------	4	2	--------	0	5	--------
Spokane	0	--------	--------	0	--------	2	0	--------	1	1	--------
Tacoma	0	--------	0	0	1	6	0	2	0	0	27
Oregon:											
Portland	0	2	0	1	4	2	2	0	0	0	58
Salem	0	1	0	0	0	0	0	0	0	0	--------
California:											
Los Angeles	20	102	3	18	14	34	0	28	2	34	276
Sacramento	1	2	2	1	0	1	0	2	0	3	21
San Francisco	0	5	0	0	7	7	0	12	1	31	169

City reports for week ended October 29, 1932—Continued

State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths	
Massachusetts:			
Boston	1	0	0
New York:			
New York	5	5	3
Pennsylvania.			
Philadelphia	0	0	10
Scranton	1	0	0
Ohio·			
Cincinnati	0	1	0
Indiana:			
Indianapolis	4	0	0
Illinois·			
Chicago	5	3	2
Michigan:			
Grand Rapids	0	0	1
Wisconsin:			
Milwaukee	1	1	0
Superior	0	0	1
Minnesota:			
Minneapolis	1	1	0
Iowa:			
Des Moines	2	0	0
Missouri:			
St Louis	1	0	0
Maryland			
Baltimore	2	0	0
District of Columbia:			
Washington	0	0	1
Louisiana:			
New Orleans	2	1	0
Texas			
Fort Worth	0	0	1
Colorado·			
Denver	1	0	1
California·			
San Francisco	1	0	0

Lethargic encephalitis.—Cases· New York, 1; Detroit, 1; New Orleans, 1.

Pellagra.—Cases. Philadelphia, 1, Scranton, 1; Charleston, S. C., 1; Atlanta, 1; Memphis, 1; New Orleans, 2.

Typhus fever.—Cases. Charleston, S. C., 1; Savannah, 2.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended October 22, 1932.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases for the week ended October 22, 1932, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis			2	1					8
Chicken pox			27	198	59	26	19	19	348
Diphtheria	2		30	12	6	21			71
Erysipelas			5	1			1	1	8
Influenza	2			3				13	18
Measles	1	5	79	257	13	4	94	43	496
Mumps				36	3			6	45
Paratyphoid fever				4					4
Pneumonia	1			15				4	20
Poliomyelitis		2	36	10					48
Scarlet fever	5	7	63	55	17	30	3	21	201
Smallpox				1	1				2
Trachoma				1				14	15
Tuberculosis		3	71	20	7	24	1	16	142
Typhoid fever		7	46	21	2	4	1		81
Undulant fever				1					1
Whooping cough			87	69	9	3	6	9	183

YUGOSLAVIA

Communicable diseases—September, 1932.—During the month of September, 1932, certain communicable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	164	24	Poliomyelitis	64	5
Cerebrospinal meningitis	7	6	Rabies	3	3
Diphtheria and croup	890	109	Scarlet fever	370	21
Dysentery	773	95	Sepsis	14	7
Erysipelas	167	5	Tetanus	48	23
Measles	135		Typhoid fever	1,049	85
Paratyphoid fever	90	5			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of the quarantinable diseases appeared in the Public Health Reports for October 28, 1932, pp. 2123-2136. A similar cumulative table will appear in the Public Health Reports to be issued November 25, 1932, and thereafter, at least for the time being, in the issue published on the last Friday of each month.)

Cholera

Philippine Islands.—During the week ended November 5, 1932,30 cases of cholera with 22 deaths were reported in Samar Province, P. I.

Plague

Dutch East Indies.—During the week ended September 17, 1932, a case of plague was reported from Surabaya, Dutch East Indies. It was said not to be in the port.

Peru.—During September, 1932, two cases of plague with two deaths were reported in Lima Department, Peru.

UNITED STATES TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

ISSUED WEEKLY

BY THE UNITED STATES PUBLIC HEALTH SERVICE

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of public health.

The PUBLIC HEALTH REPORTS are intended primarily for distribution to health officers, members of boards or departments of health, and those directly or indirectly engaged in or connected with public health or sanitary work. Articles of general or special interest are issued as reprints from the PUBLIC HEALTH REPORTS or as supplements, and in these forms are available for general distribution to those desiring them.

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CONTENTS

PREVALENCE OF DISEASE

PUBLIC HEALTH REPORTS

VOL. 47 NOVEMBER 25, 1932 NO. 48

CURRENT PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES[1]

October 9–November 5, 1932

The prevalence of certain important communicable diseases, as indicated by weekly telegraphic reports from State health departments to the United States Public Health Service, is summarized in this report. The underlying statistical data are published weekly in the PUBLIC HEALTH REPORTS, under the section entitled "Prevalence of Disease."

Diphtheria.—The expected seasonal increase of diphtheria continued through the current 4-week period. The number of reported cases (7,685) was, however, only 78 per cent of the number reported for the corresponding period in 1931, and 85 per cent of the number in 1929. For this period in 1930—a more nearly normal year—the number of cases totaled 6,461. Each geographic area reported a lower incidence than was reported for the corresponding period last year. The decreases ranged from 3 per cent in the West North Central to 29 per cent in the Mountain and Pacific areas combined.

Poliomyelitis.—For the country as a whole the incidence of poliomyelitis dropped more than 50 per cent during the current 4-week period as compared with the preceding four weeks. The number of cases (447) was only 25 per cent of the number reported for the corresponding period last year and 22 per cent of the number in 1930. For this period in 1929 the number of cases totaled 459.

A study of geographic areas shows that in the Middle Atlantic States, where the outbreak first occurred, the incidence has dropped to almost a normal level. In all other areas, except the Pacific, where there has been no rise above the usual seasonal increase, the peak seems to have been passed and the general tendency was downward. In the Pacific States, while the number of cases was not high (40), it was the highest reported for any 4-week period for the current year.

[1] From the Office of Statistical Investigations, U. S. Public Health Service. The numbers of States included for the various diseases are as follows: Typhoid fever, 47; poliomyelitis, 48; meningococcus meningitis, 48; smallpox, 48; measles, 46; diphtheria, 47; scarlet fever, 47; influenza, 39 States and New York City. The District of Columbia is counted as a State in these reports.

Measles.—Reports indicated a normal seasonal increase in the incidence of measles during the current 4-week period. The disease seemed to be most prevalent in the States along the Atlantic coast and in the Great Lakes regions. Montana, in the Mountain area, reported a slight outbreak. There the number of reported cases rose from 204 for the preceding 4-week period to 436 for the current period. Other States in that area as well as States in the Pacific area reported little change from the preceding period. For the country as a whole, the number of cases for the current period was 4,452, as against 4,244, 3,930, and 5,573 for the corresponding period in the years 1931, 1930, and 1929, respectively.

Scarlet fever.—The number of cases of scarlet fever increased from 8,293 for the preceding 4-week period to 13,491 for the four weeks ended November 5. Compared with previous years the incidence in the whole reporting area was the highest for this period in four years. Each geographic area, except the Mountain and Pacific areas, showed very significant increases over the corresponding period in the three preceding years. In the Mountain and Pacific areas the number of cases closely approximated the average for preceding years.

Meningococcus meningitis.—The prevalence of meningococcus meningitis remained at about the same low level for the current period that it has maintained during the year. The number of cases (146) was only about 65 per cent of last year's figure for the same period and was less than one-half the figures for 1930 and 1929. In each geographic area the incidence was the lowest in recent years.

Smallpox.—The rise in smallpox incidence during the current period was considerably below the normal seasonal increase. The number of reported cases (184) was only 30 per cent of the incidence during the same period last year, less than one-fourth the number reported for the corresponding period in 1930 and one-tenth the number in 1929. Each geographic area has shared in the favorable situation which has prevailed throughout the current year.

Typhoid fever.—A gradual decline in the number of cases of typhoid fever continued, and for the four weeks ended November 5 there were 2,117 cases reported—approximately 1,500 less than occurred during the preceding 4-week period. The decline was very general. For the country as a whole a lower incidence was indicated than for the same period in any of the three preceding years.

Influenza.—The number of cases of influenza rose from 2,707 during the four weeks ended October 8 to 4,939 for the current 4-week period. Geographic areas showing increases were widely scattered. In the East North Central area 509 cases were reported as against 195 for the preceding period, in the South Atlantic 1,636 cases were reported as against 1,023 for the preceding period, in the Mountain

464 as against 43 for the preceding period, and in the Pacific 1,363 as against 905. Compared with previous years the incidence was the highest for this period in recent years. Each geographic area, except the West North Central, reported an excess in incidence over the same period last year.

Mortality, all causes.—The death rate from all causes in large cities, as reported by the Bureau of the Census, showed a slight rise during the current period over the preceding 4-week period, but it was the lowest for a corresponding period in seven years. The rate for the current period was 10.3, as against 10.6, 11.3, and 11.7 for the years 1931, 1930, and 1929, respectively.

SICKNESS AMONG MALE INDUSTRIAL EMPLOYEES DURING THE SECOND QUARTER OF 1932 [1]

By Dean K. Brundage, *Statistician, Office of Industrial Hygiene and Sanitation, United States Public Health Service*

The frequency of sickness causing disability for eight consecutive calendar days or longer among the male members of industrial sick-benefit associations reporting to the United States Public Health Service was slightly higher in the second quarter of 1932 than during the like period of last year, but lower than the rate recorded for the same months of 1929 and 1930. The lower incidence level of illness (including nonindustrial injuries) in the second quarter of 1931 and 1932 than in the same period of the two earlier years is evidenced by the average rate of 91.0 cases per 1,000 males, as compared with 100.3 in the April to July period of 1929 and 1930. The decrease in sickness frequency which has characterized the record from 1929 to 1931 may be regarded as well maintained during the second quarter of 1932.

Table 1.—*Frequency of disability lasting eight calendar days or longer in the second quarter of 1932 compared with the same quarter of 1931, 1930, and 1929 (male morbidity experience of 29 industrial establishments which reported their cases to the United States Public Health Service during all four years)* [a]

Diseases and disease groups which caused disability. (Numbers in parentheses are disease title numbers from the International List of the Causes of Death, Fourth Revision, Paris, 1929)	Annual number of disabilities per 1,000 men in second quarter of—			
	1932	1931	1930	1929
Sickness and nonindustrial injuries [b]	92.3	89.6	96.1	104.4
Nonindustrial injuries	12.3	12 2	11.8	11.7
Sickness [b]	80.0	77.4	84.3	92.7
Respiratory diseases	28.1	26.7	32.1	35.6
Influenza and grip (11)	13.1	10 6	12.3	12.2
Bronchitis—acute and chronic (106)	3.2	3.0	4.1	4.8
Pneumonia—all forms (107–109)	1.7	2.1	2.4	3.2
Diseases of the pharynx and tonsils (115a)	5.3	6.1	7.0	8.6
Tuberculosis of the respiratory system (23)	.8	1.2	1.7	1.4
Other respiratory diseases (104, 105, 110–114)	4.0	3.7	4.6	5.4

[a] Except that the rates for 1930 and 1929 cover 27 and 23 companies, respectively, instead of 29 in 1931 and 1932. The rates for the corresponding period of preceding years differ somewhat from those shown in earlier publications, because data for additional groups have become available in the meantime.

[b] Exclusive of disability from venereal diseases.

[1] The report for the first quarter was published in Public Health Reports for July 15, 1932.

TABLE 1.—*Frequency of disability lasting eight calendar days or longer in the second quarter of 1932 compared with the same quarter of 1931, 1930, and 1929 (male morbidity experience of 29 industrial establishments which reported their cases to the United States Public Health Service during all four years)*—Continued

Diseases and disease groups which caused disability. (Numbers in parentheses are disease title numbers from the International List of the Causes of Death, Fourth Revision, Paris, 1929)	Annual number of disabilities per 1,000 men in second quarter of—			
	1932	1931	1930	1929
Nonrespiratory diseases	51.9	50.7	52.2	57.1
Diseases of the stomach—cancer excepted (117, 118)	4.4	3.8	4.6	5.2
Diarrhea and enteritis (120)	.7	9	1.3	1.4
Appendicitis (121)	4.0	3.5	4.9	5.3
Hernia (122a)	1.4	2.0	1.4	2.2
Other digestive diseases (115b, 116, 122b–129)	3.0	3.1	3.0	3.3
Rheumatic group, total	12.8	10.9	11.7	12.4
Rheumatism—acute and chronic (56–58)	6.4	6.1	6.1	6.6
Diseases of the organs of locomotion (156b)	3.6	3.3	3.6	3.5
Neuralgia, neuritis, and sciatica (87a)	2.8	1.5	2.0	2.3
Neurasthenia and the like (part of 87b)	1.3	1.8	1.3	1.5
Other diseases of the nervous system (78–85, part of 87b)	1.4	1.6	.9	1.1
Diseases of the heart and arteries and nephritis (90–99, 102, 130–132)	4.9	4.2	3.8	4.2
Other genito-urinary diseases (133–138)	2.5	2.5	2.4	2.3
Diseases of the skin (151–153)	2.7	3.3	3.9	4.4
Epidemic and endemic diseases except influenza (1–10, 12–18, 33, 37, 38, part of 39 and 44)	2.9	2.7	3.4	3.1
Ill-defined and unknown causes (200)	1.6	1.9	2.1	2.3
All other diseases (19–22, 24–32, 36, part of 39 and 44, 40–43, 45–55, 59–77, 88, 89, 100, 101, 103, 154–156a, 157, 162)	8.3	8.5	7.5	8.4
Average number of males covered in the record	134,414	153,580	165,791	164,108
Number of companies included	29	29	27	23

For respiratory diseases as a whole the rate during the recent quarter-year was slightly higher than in the second three months of 1931 on account of an increase in the number of cases reported as influenza. In fact, the influenza rate was higher in the second quarter of 1932 than during the like period of any of the preceding three years. Attesting the mildness of these cases, the incidence of pneumonia fell to the lowest level hitherto recorded for the second quarter. The frequency of new cases of tuberculosis of the respiratory system was also exceptionally low. Likewise, gratifying decreases in the rate of death from tuberculosis and from pneumonia among the industrial population of the United States and Canada are reported by the Metropolitan Life Insurance Company.[2] When the rates for bronchitis (acute and chronic), diseases of the pharynx and tonsils, and for the miscellaneous respiratory diseases included in the category "Other respiratory diseases" are added together, one finds that the total, which might well be regarded as representative of the minor respiratory diseases, was lower in the second quarter of 1932 than during the same period of any one of the three preceding years.

The rate for nonrespiratory diseases as a whole, like that for the respiratory group, was slightly higher in the recent period under review than in the corresponding months of 1931. As compared with that part of 1929 and 1930, which is under consideration, the fre-

[2] *Cf.* "Record Health Rate—First Half of 1932." Statistical Bulletin, Metropolitan Life Insurance Co., vol. 13, No. 7, July, 1932.

quency of claims for illness benefits on account of diseases of the digestive system was lower in 1931 and 1932, the average rate for the second quarter of the latter years being 13.4 cases per 1,000 men as against 16.3 during the second three months of 1929 and 1930. Each of the digestive disease categories shown in the accompanying table participated in the decline with the exception of hernia. A marked decrease occurred in the incidence of diseases of the skin, thus continuing the favorable trend for this group noted in the statistics for 1931 and for the first quarter of 1932.

On the unfavorable side the recent quarter reveals a higher incidence for the rheumatic group and for the "degenerative" diseases (diseases of the heart and arteries, and genito-urinary diseases) than was recorded even in the 1929 period. It is possible, however, that these increases may reflect a shift in the age distribution of the insured, as certain employment records show a larger proportion of younger than of older men dismissed when economic conditions require radical curtailment of working forces.

As pointed out in previous communications, the reporting establishments are scattered all over the United States, with a preponderance of companies located north of the Ohio and Potomac Rivers and east of the Mississippi. Identical companies reported in 1931 and 1932, and in 1929 and 1930 the group was almost the same. The records covered about 134,000 men in the second quarter of 1932, about 154,000 in the same months of 1931, and approximately 165,000 men in 1929 and 1930. Only employed persons are included; no information is available concerning the health of the unemployed. However, without doubt a large number of the men included were employed only part of the time.

COURT DECISION RELATING TO PUBLIC HEALTH

Statutory prohibition against a garbage reduction plant held not to include a garbage incineration plant.—(Maryland Court of Appeals; Stoll et al. *v.* Mayor and City Council of Baltimore et al., 162 A. 267; decided Oct. 6, 1932.) A State law prohibited the establishment of a garbage reduction plant within a certain specified area. One of the questions presented in the case at bar was whether this statute prohibited the establishment of a garbage incineration plant. The court of appeals decided that it did not, taking the view that the distinction was that a reduction plant conveyed the idea "of so handling a substance as to change its form, usually reduce its volume, and extract something of value from it," while an incinerating plant conveyed a distinct impression that the substance would be consumed and destroyed.

DEATHS DURING WEEK ENDED NOVEMBER 5, 1932

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Nov. 5, 1932	Corresponding week, 1931
Data from 85 large cities of the United States:		
Total deaths	7,229	7,381
Deaths per 1,000 population, annual basis	10.3	10.7
Deaths under 1 year of age	525	591
Deaths under 1 year of age per 1,000 estimated live births [1]	44	49
Deaths per 1,000 population, annual basis, first 44 weeks of year	11.0	11.8
Data from industrial insurance companies:		
Policies in force	70,018,127	74,829,360
Number of death claims	11,733	11,783
Death claims per 1,000 policies in force, annual rate	8.8	8.3
Death claims per 1,000 policies, first 44 weeks of year, annual rate	9.5	9.7

[1] 1932, 81 cities; 1931, 77 cities.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended November 12, 1932, and November 14, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended November 12, 1932, and November 14, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Nov. 12, 1932	Week ended Nov. 14, 1931	Week ended Nov. 12, 1932	Week ended Nov. 14, 1931	Week ended Nov. 12, 1932	Week ended Nov. 14, 1931	Week ended Nov. 12, 1932	Week ended Nov. 14, 1931
New England States:								
Maine		3				127	0	0
New Hampshire		4			1	4	0	0
Vermont	4	17				21	0	0
Massachusetts	33	65	8	5	44	72	4	1
Rhode Island	5	8			1	165	0	0
Connecticut	5	6		3	10	26	0	0
Middle Atlantic States:								
New York	57	102	[1] 15	[1] 7	239	175	4	11
New Jersey	16	35	6	15	91	22	2	3
Pennsylvania	121	132			171	250	1	4
East North Central States								
Ohio	119	210	93	27	114	24	3	1
Indiana	88	80	58	6	9	27	4	2
Illinois	108	140	21	5	48	111	6	4
Michigan	12	34	17		149	230	3	2
Wisconsin	9	28	28	20	136	21	1	0
West North Central States:								
Minnesota	14	18		1	64	17	1	1
Iowa	19	30			2	4	0	3
Missouri	93	95		319	18		1	3
North Dakota		1			157		0	1
South Dakota	1	8		1		80	0	0
Nebraska	33	26		1	1	10	1	0
Kansas	26	68	2		1	25	1	1
South Atlantic States:								
Delaware	2	42					0	0
Maryland [3]	16	69	3	12	3	5	0	1
District of Columbia	8	6	2				0	2
Virginia	57				43		1	
West Virginia	39	64	5	1	33	127	0	1
North Carolina	67	147	6	31	58	15	0	4
South Carolina [3]	34	46	415	361	28	4	0	0
Georgia [3]	82	52		35		7	0	0
Florida	16	21	1	1	2	23	0	0
East South Central States:								
Kentucky	36	162	14		4		0	0
Tennessee	59	143	39	37	1	4	2	1
Alabama [3]	70	74	38	23	6		2	5
Mississippi	33	98					1	1

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended November 12, 1932, and November 14, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Nov. 12, 1932	Week ended Nov. 14, 1931	Week ended Nov. 12, 1932	Week ended Nov. 14, 1931	Week ended Nov. 12, 1932	Week ended Nov. 14, 1931	Week ended Nov. 12, 1932	Week ended Nov. 14, 1931
West South Central States.								
Arkansas	18	74	27	1	1	13	0	0
Louisiana	29	55	16	11	8	1	0	5
Oklahoma [4]	96	135	22	18	1	5	0	0
Texas [3]	249	82	106	6	6	6	0	2
Mountain States.								
Montana			6	2	85	54	0	0
Idaho	5	6				1	0	2
Wyoming						2	0	0
Colorado	4	9				6	0	1
New Mexico	25	20	38				10	1
Arizona	3	30	158	3	2	3	1	2
Utah [2]			26	4	1	1	0	0
Pacific States								
Washington	6	11	3		10	26	0	2
Oregon	2		64	34	58	7	0	0
California	111	132	478	42	40	104	2	5
Total	1,830	2,597	1,708	1,032	1,646	1,825	51	72

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Nov. 12, 1932	Week ended Nov. 14, 1931	Week ended Nov. 12, 1932	Week ended Nov. 14, 1931	Week ended Nov. 12, 1932	Week ended Nov. 14, 1931	Week ended Nov. 12, 1932	Week ended Nov. 14, 1931
New England States:								
Maine	1	8	13	31	0	0	1	5
New Hampshire	0	0	18	7	0	0	0	0
Vermont	0	0	4	14	0	0	0	0
Massachusetts	2	11	215	218	0	0	4	3
Rhode Island	0	1	20	14	0	0	1	0
Connecticut	0	9	50	35	0	0	1	4
Middle Atlantic States:								
New York	4	52	357	390	0	11	8	21
New Jersey	2	14	107	121	0	0	8	6
Pennsylvania	9	15	433	401	0	0	24	64
East North Central States:								
Ohio	3	9	543	566	39	6	19	53
Indiana	0	0	152	89	0	6	10	10
Illinois	6	27	341	315	2	6	14	21
Michigan	1	12	207	157	0	28	22	14
Wisconsin	1	10	71	61	1	10	1	4
West North Central States.								
Minnesota	1	27	61	51	0	1	1	4
Iowa	1	9	36	60	4	21	2	6
Missouri	1	0	133	92	0	3	3	19
North Dakota	0	0	1	16	0	29	0	8
South Dakota	0	4	4	21	0	2	1	3
Nebraska	2	2	32	33	1	3	1	0
Kansas	1	1	93	84	3	3	4	5
South Atlantic States:								
Delaware	0	0	2	9	0	0	2	1
Maryland [3]	1	1	61	103	0	0	11	30
District of Columbia	1	0	18	21	0	0	0	2
Virginia	0		91		1		13	
West Virginia	1	1	73	59	0	1	19	37
North Carolina	0	1	73	167	0	0	3	19
South Carolina [3]	1	3	13	26	0	0	15	6
Georgia [3]	0	0	23	37	0	0	10	18
Florida	0	1	5	5	0	0	5	7
East South Central States:								
Kentucky	1	3	63	104	1	2	6	49
Tennessee	1	1	63	93	6	4	9	37
Alabama [3]	1	2	48	70	1	1	8	28
Mississippi	0	1	31	51	2	2	8	10

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended November 12, 1932, and November 14, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Nov. 12, 1932	Week ended Nov. 14, 1931	Week ended Nov. 12, 1932	Week ended Nov. 14, 1931	Week ended Nov. 12, 1932	Week ended Nov. 14, 1931	Week ended Nov. 12, 1932	Week ended Nov. 14, 1931
West South Central States:								
Arkansas	0	1	13	31	5	0	9	15
Louisiana	1	0	15	47	0	0	6	25
Oklahoma [4]	1	0	40	53	1	1	8	23
Texas [3]	1	1	102	47	0	2	2	7
Mountain States:								
Montana	0	5	15	16	0	2	7	2
Idaho	0	0	5	3	7	0	4	3
Wyoming	0	0	11	6	0	0	0	0
Colorado	0	0	28	47	0	1	2	9
New Mexico	0	0	7	13	0	0	8	7
Arizona	0	0	6	6	0	0	1	1
Utah [2]	0	0	5	7	1	0	0	0
Pacific States								
Washington	1	3	39	64	4	12	0	3
Oregon	0	1	25	17	2	4	1	4
California	6	5	130	116	0	4	3	12
Total	52	241	3,896	4,047	81	165	285	606

[1] New York City only.
[2] Week ended Friday.
[3] Typhus fever, week ended Nov. 12, 1932, 11 cases: 1 case in South Carolina, 6 cases in Georgia, 1 case in Alabama, and 3 cases in Texas.
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa and for 1931 are exclusive of Tulsa only.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
September, 1932										
Delaware		10			1		4	13	0	7
Mississippi	4	180	1,101	6,650	24	416	3	65	0	71
October, 1932										
Arizona		17	126		8		4	47	0	7
Delaware	1	15			5		2	24	0	10
Maine	1	12	6		3		33	88	1	21
Massachusetts	7	111	10		198	2	4	731	0	31
Michigan	5	87	42	7	259	1	14	792	1	73
New Jersey	6	113	63		313		47	422	0	38
North Dakota	2	3			104		5	24	4	17
Tennessee	7	490	129	397	3	11	11	406	4	133
Vermont		17			9		6	33	0	0
Wyoming		1	2	1	8		0	64	0	5

September, 1932

	Cases
Chicken pox	
Delaware	3
Mississippi	96
Dengue:	
Mississippi	4
Dysentery:	
Mississippi (amebic)	40
Hookworm disease:	
Mississippi	204
Mumps:	
Mississippi	60
Ophthalmia neonatorum:	
Mississippi	7
Puerperal septicemia	
Mississippi	15
Rabies in animals	
Mississippi	3
Trachoma	
Mississippi	2
Undulant fever	
Delaware	1
Mississippi	2
Whooping cough:	
Delaware	6
Mississippi	269

October, 1932

	Cases
Chicken pox:	
Arizona	5
Delaware	19
Maine	146
Massachusetts	345
Michigan	730
New Jersey	455
North Dakota	63
Tennessee	25
Vermont	62
Wyoming	27

	Cases
Dysentery:	
Arizona	1
Massachusetts	26
Michigan	1
New Jersey	1
Tennessee	9
German measles:	
Maine	8
Massachusetts	27
New Jersey	20
Tennessee	5
Impetigo contagiosa:	
North Dakota	1
Tennessee	11
Lead poisoning:	
Massachusetts	7
Lethargic encephalitis:	
Arizona	1
Massachusetts	1
Michigan	7
New Jersey	4
North Dakota	1
Mumps:	
Arizona	75
Maine	17
Massachusetts	216
Michigan	201
New Jersey	147
Tennessee	27
Vermont	88
Wyoming	1

	Cases
Ophthalmia neonatorum:	
Maine	2
Massachusetts	88
New Jersey	3
Tennessee	2
Paratyphoid fever:	
Maine	1
Tennessee	3
Psittacosis:	
North Dakota	1
Puerperal septicemia:	
Tennessee	1
Rabies in animals:	
New Jersey	24
Scabies:	
North Dakota	1
Septic sore throat:	
Massachusetts	10
Michigan	15
North Dakota	1
Tennessee	8
Wyoming	7
Tetanus:	
Massachusetts	1
New Jersey	1
Tennessee	2
Trachoma:	
Arizona	73
Massachusetts	2
New Jersey	1
Tennessee	39

	Cases
Trichinosis:	
Massachusetts	2
New Jersey	1
Tularaemia:	
Arizona	1
Michigan	1
New Jersey	1
Wyoming	2
Typhus fever:	
Massachusetts	1
Undulant fever:	
Arizona	1
Maine	[1] 6
Massachusetts	3
Michigan	3
New Jersey	2
Vincent's angina:	
Maine	9
Tennessee	9
Vincent's infection:	
North Dakota	30
Whooping cough:	
Arizona	5
Delaware	8
Maine	21
Massachusetts	272
Michigan	669
New Jersey	293
North Dakota	24
Tennessee	92
Vermont	30
Wyoming	25

[1] Including 3 delayed reports.

WEEKLY REPORTS FROM CITIES

City reports for week ended November 5, 1932

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Maine:											
Portland	1		0	0	1	0	0	2	0	3	
New Hampshire:											
Concord	0		0	0	0	0	0	0	0	0	8
Nashua	0		0	0	0	0	0	0	0	0	
Vermont:											
Barre	0		0	0	0	0	0	0	0	0	1
Burlington	0		0	0	0	0	0	0	0	0	5
Massachusetts:											
Boston	9	1	1	13	6	50	0	2	0	35	181
Fall River	0		0	0	0	5	0	2	1	2	23
Springfield	0		0	0	3	7	0	1	1	1	36
Worcester	0		0	1	3	11	0	3	0	2	45
Rhode Island:											
Pawtucket	0		0	0	1	0	0	0	0	0	23
Providence	1		0	0	4	9	0	1	0	8	67
Connecticut:											
Bridgeport	1		0	3	0	4	0	1	0	5	29
Hartford	0		0	1	1	0	0	0	0	0	26
New Haven	0		0	0	0	1	0	0	0	9	38
New York:											
Buffalo	3		0	2	15	25	0	4	1	30	125
New York	44	6	3	97	95	64	0	79	5	97	1,262
Rochester	0		0	2	3	12	0	1	0	2	67
Syracuse	0		0	5	1	13	0	2	0	5	43
New Jersey:											
Camden	3		0	1	1	6	0	3	0	9	31
Newark	2	6	0	19	3	7	0	2	0	8	80
Trenton	1		0	0	0	4	0	0	1	4	27
Pennsylvania:											
Philadelphia	9	3	0	7	22	39	0	22	4	6	378
Pittsburgh	6	1	1	2	9	42	0	3	0	11	148
Reading	2		0	13	1	3	0	0	0	0	16
Scranton	4		0	0		2	0		2	3	
Ohio:											
Cincinnati	2		0	0	13	16	0	5	0	0	125
Cleveland	8	42	0	3	14	38	0	14	2	16	163
Columbus	5	2	2	31	3	21	0	3	0	0	68
Toledo	6	5	3	4	1	25	0	3	0	6	63

City reports for week ended November 5, 1932—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Indiana:											
Fort Wayne	10		0	0	1	1	0	1	0	0	24
Indianapolis	7		0	1	9	10	0	3	0	2	
South Bend	0		0	0	1	6	0	1	0	1	23
Terre Haute	1		0	1	1	2	0	0	0	0	22
Illinois:											
Chicago	20	4	1	49	38	132	0	30	1	19	593
Springfield	8		0	0	2	6	0	0	0	0	13
Michigan:											
Detroit	8		0	24	6	56	0	14	2	100	196
Flint	2	17	0	0	2	4	0	1	1	14	23
Grand Rapids	0		0	0	3	0	0	0	0	26	20
Wisconsin:											
Kenosha	0		0	2	0	7	0	0	0	0	5
Madison	0			2		3	0		0	0	
Milwaukee	4		0	4	2	22	0	6	1	23	75
Racine	1		0	1	0	4	0	0	0	1	7
Superior	0		0	1	0	0	0	0	0	0	11
Minnesota:											
Duluth	0		0	0	2	1	0	1	0	0	19
Minneapolis	3		1	6	14	8	0	1	0	5	
St. Paul	0		0	1	10	11	0	2	0	20	81
Iowa:											
Des Moines	7			0		5	0		0	0	34
Sioux City	1			0		0	0		0	0	
Waterloo	0			0		1	0		0	4	
Missouri:											
Kansas City	0		0	8	5	40	0	2	1	2	100
St. Joseph	14		0	1	3	4	0	0	0	0	10
St. Louis	20		0	1	8	27	0	13	2	0	200
North Dakota:											
Fargo	1		0	1	0	0	0	0	1	0	5
Grand Forks	0		0	20	0	0	0	0	0	0	
South Dakota:											
Aberdeen	0		0	1	0	0	0	0	0	0	
Nebraska:											
Lincoln	0		0	0	0	1	0	0	0	0	
Omaha	15		0	1	8	15	0	2	0	0	60
Kansas:											
Topeka	1		0	6	0	4	0	0	0	0	13
Wichita	1		0	0	3	6	0	0	0	0	36
Delaware:											
Wilmington	0		0	0	2	1	0	0	0	0	20
Maryland:											
Baltimore	4	1	1	1	17	27	0	9	1	13	197
Cumberland	0		0	0	0	3	0	0	0	0	5
Frederick	0		0	0	0	1	0	0	0	0	3
District of Col.:											
Washington	6		2	1	8	11	0	11	2	10	149
Virginia:											
Lynchburg	3		0	0	0	4	0	0	0	3	7
Norfolk	0		0	1	1	3	0	1	0	0	32
Richmond	5		0	1	0	13	0	3	2	0	38
Roanoke	3		0	0	0	2	0	0	2	0	13
West Virginia:											
Charleston	0		0	0	0	1	0	2	0	1	26
Huntington	3		0	2	0	7	0	0	0	0	
Wheeling	0		0	24	0	2	0	0	1	3	17
North Carolina:											
Raleigh	1		0	1	0	1	0	0	0	0	8
Wilmington	0		0	0	0	3	0	1	0	0	15
Winston-Salem	4	1	0	1	2	1	0	2	0	0	22
South Carolina:											
Charleston	1	12	0	0	0	1	0	0	0	0	17
Columbia											
Greenville	1		0	0	0	0	0	0	0	0	
Georgia:											
Atlanta	23	9	0	0	4	3	0	2	2	3	65
Brunswick	2		0	0	0	0	0	1	0	0	3
Savannah	2	1	0	0	3	2	0	3	0	0	35
Florida:											
Miami	0		0	0	0	0	0	1	0	0	19
Tampa	4		0	0	0	0	0	1	0	0	23
Kentucky:											
Covington											
Lexington	1		0	0	1	4	0	1	0	0	13
Louisville	7	2	0	0	7	11	0	1	0	0	71

City reports for week ended November 5, 1932—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid-fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Tennessee:											
Memphis	15	------	0	1	6	6	0	5	0	5	79
Nashville	5	------	2	0	4	3	0	1	0	0	46
Alabama:											
Birmingham	8	------	0	0	4	7	0	0	1	1	72
Mobile	2	1	1	0	1	1	0	2	0	0	26
Montgomery	4	------	0	0	0	0	0	0	0	0	------
Arkansas:											
Fort Smith	0	------	------	1	------	1	0	------	0	0	------
Little Rock	2	------	0	0	2	3	0	4	0	0	6
Louisiana:											
New Orleans	14	------	0	1	16	11	0	9	1	0	154
Shreveport	0	------	0	0	3	3	0	1	0	0	33
Oklahoma:											
Muskogee	0	------	------	0	------	2	0	------	1	0	------
Tulsa	5	------	0	0	0	2	0	0	1	1	------
Texas:											
Dallas	33	------	0	0	2	16	0	1	1	0	33
Fort Worth	8	------	0	0	3	16	0	2	0	0	32
Galveston	1	------	0	0	0	4	0	0	1	0	11
Houston	36	------	0	0	7	5	0	4	0	0	64
San Antonio	5	1	0	0	4	1	0	11	0	0	53
Montana:											
Billings	0	------	0	0	0	0	0	0	0	0	4
Great Falls	0	------	0	11	1	1	0	0	0	0	6
Helena	0	------	0	0	0	------	0	0	0	0	3
Missoula	0	------	0	0	0	------	0	0	0	0	3
Idaho:											
Boise	------	------	------	------	------	------	------	------	------	------	------
Colorado:											
Denver	10	------	0	0	10	9	0	1	0	1	68
Pueblo	2	------	0	0	1	0	0	0	0	6	10
New Mexico:											
Albuquerque	1	1	2	0	1	3	0	5	0	2	10
Arizona:											
Phoenix	0	------	0	0	0	2	0	2	0	0	------
Utah:											
Salt Lake City	1	------	1	0	3	0	0	2	0	3	26
Nevada:											
Reno	0	------	0	0	1	0	0	0	0	0	5
Washington:											
Seattle	0	------	------	0	------	4	0	------	0	0	------
Spokane	0	------	------	3	------	1	0	------	0	0	------
Tacoma	0	------	0	0	2	4	0	0	0	0	20
Oregon:											
Portland	0	------	0	0	2	12	0	2	0	0	58
Salem	0	2	------	0	------	0	0	------	0	0	------
California:											
Los Angeles	25	139	3	12	4	28	2	24	0	32	273
Sacramento	0	------	0	0	2	5	0	4	1	1	32
San Francisco	2	7	0	3	5	7	0	7	0	37	147

State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths	
Massachusetts:			
Boston	0	0	1
New York:			
New York	6	3	2
New Jersey:			
Camden	0	0	1
Pennsylvania:			
Philadelphia	0	0	8
Ohio:			
Cincinnati	0	0	1
Indiana:			
Indianapolis	3	1	0
Illinois:			
Chicago	4	0	1
Springfield	0	0	1
Maryland:			
Baltimore	2	0	1
District of Columbia:			
Washington	0	0	1
West Virginia:			
Charleston	1	1	0
South Carolina:			
Greenville	0	0	1
Tennessee:			
Memphis	1	0	1
Arizona:			
Phoenix	1	0	0
Washington:			
Seattle	0	0	1
Oregon:			
Portland	0	0	1
California:			
Los Angeles	0	0	1
San Francisco	1	0	1

Lethargic encephalitis.—Cases: Bridgeport, 1; St. Louis, 1; Fargo, 1.
Pellagra.—Cases: Raleigh, 2; Atlanta, 1.
Typhus fever.—Cases: Savannah, 4; Dallas, 1.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended October 29, 1932.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases for the week ended October 29, 1932, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis				2					2
Chicken pox	8		85	238	49	10	23	36	449
Diphtheria	1	5	37	40	10	4	1		98
Erysipelas			5	2	3		1	1	12
Influenza	2							7	9
Measles		2	41	320	17		24	31	444
Mumps				66	4			5	75
Paratyphoid fever				2				1	3
Pneumonia				9		1		1	11
Poliomyelitis		2	9	5			3		19
Scarlet fever	5	29	75	75	18	14	7	15	238
Trachoma					2			58	60
Tuberculosis	1	1	51	30	26		5	13	127
Typhoid fever	1	11	39	9	7	5	2	1	75
Undulant fever				2					2
Whooping cough			131	74	38	5	1	27	276

Quebec Province—Communicable diseases—Four weeks ended November 5, 1932.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the four weeks ended November 5, 1932, as follows:

Disease	Week ended—				
	Oct. 15	Oct 22	Oct 29	Nov. 5	Total
Cerebrospinal meningitis		2			2
Chicken pox	38	27	85	60	210
Diphtheria	20	30	37	30	117
Erysipelas	4	5	5	5	19
German measles		15		2	17
Lethargic encephalitis	1				1
Measles	9	64	41	13	127
Poliomyelitis	38	36	9	6	89
Puerperal fever	2		1		3
Scarlet fever	61	63	75	50	249
Tuberculosis	62	71	51	68	252
Typhoid fever	44	46	39	15	144
Whooping cough	44	87	131	124	386

MEXICO

Tampico—Communicable diseases—October, 1932.—During the month of October, 1932, certain communicable diseases were reported in Tampico, Mexico, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria	3	1	Paratyphoid fever	4	1
Enteritis	65	49	Tuberculosis	31	32
Influenza	65		Typhoid fever	8	1
Malaria	619	18	Whooping cough	13	
Measles	1				

PANAMA CANAL ZONE

Communicable diseases—September, 1932.—During the month of September, 1932, certain communicable diseases, including imported cases, were reported in the Panama Canal Zone and terminal cities as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Chicken pox	12		Mumps	1	
Diphtheria	19		Pneumonia		12
Dysentery (amebic)	2	3	Tuberculosis		28
Leprosy	1	1	Typhoid fever	2	
Malaria	138	1	Whooping cough	5	1
Measles	16	1			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service. American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given

CHOLERA

[C indicates cases, D, deaths; P, present]

Place		May 1-28, 1932	May 29-June 25, 1932	June 26-July 23, 1932	Week ended— July 30, 1932	August, 1932 6	August, 1932 13	August, 1932 20	August, 1932 27	September, 1932 3	September, 1932 10	September, 1932 17	September, 1932 24	October, 1932 1	October, 1932 8	October, 1932 15	October, 1932 22	October, 1932 29	November, 1932 5	November, 1932 12
Baluchistan	C			18	11	35	11	2	1											
	D			6	9	17	11													
China:																				
Amoy	C		3	955	192	110	97	97	36	52	41	31	17	7	6	4				
	D		2	479	103	48	40	21	14	1	15	10	5	2	3	2				
Canton	C	2	679	358	6	11	8	7	13	3	5	1	5	8	2	2				
	D	1	265	106	1	7	4	2	3		3	1	1	3	2	2				
Dairen.[1]																				
Hankow	C	8	16	89	6	156	109	113	112	56	29	12	1							
	D	3		13	3	21	13	20	16	6	4	7	1							
Hong Kong	C		9	118	39	30	11	8	8	8	5	4	1							
	D		9	66	16	15	9	5	8	5	4	3	1							
Kwantung Leased Territory—District of Port Arthur	C			P	2								1							
Macao	C				30	18	25	20	4	4	1		1							
	D			26	29	18	25	20	4	4	1		1							
Nanking	C		254	397	144	112	138	169	93	104	48	13		12						
	D		79	70	29	24	17	14	7	14	7	1								
Newchwang	C		1	5																
	D			4																
Shanghai	C	70	588	1,360	504	454	343	347	258	131	110	47	21	11	3					
	D	3	53	92	41	39	31	28	17	11	10	6	1							
Swatow[2]	C	1	50	94	56	67	67	48			7	9	2	10	12	6				
	D		3	14	3	10	7	11			5									
Tientsin	C		41	222	34	32	2	1	22	5	5			1						
	D		8	22		3			1											

[1] 129 cases, 78 deaths, in Dairen, up to Aug. 28, 1932
[2] Local unofficial reports included 159 deaths from cholera in Swatow, China, from June 10 to 30, 1932.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

CHOLERA—Continued

[C indicates cases; D, deaths; P, present]

Place		May 1-28, 1932	May 29-June 25, 1932	June 26-July 23, 1932	July 30, 1932	Week ended— August, 1932: 6	13	20	27	September, 1932: 3	10	17	24	October, 1932: 1	8	15	22	29	November, 1932: 5	12
China—Continued.																				
Tsinan—Shantung Province	C								P	P	P	P								
Tsingtao	C						5	5	22	5	5	4	4	2						
	D						1	1	8	1	1									
Chosen	C								8	9										
	D								8	1										
India	C	4,386	3,523	4,232	1,600	1,645	1,404	1,621	1,543	1,657	1,758	1,354								
	D	2,170	1,811	2,135	836	927	782	878	836	920	970	751								
Bombay	C			2	2	1											3	1		
	D			1	1												2			
Calcutta	C	649	380	405	52	29	47	30	22	23	20	17	16	14	11	21	6	11		
	D	321	186	171	18	8	19	13	9	8	3	5	3	6	6	2	1	3		
Rangoon	C	1	3	1							1									
	D	1	2																	
India, French:																				
Chandernagor	C	19	1																	
	D	12	1																	
Pondichéry Territory	C						2	1												
	D						2	1												
Indo-China (see also table below):																				
Pnom-Penh	C	1	3			1						1	2		3					
	D	1	3									1	2		3					
Saigon and Cholon	C	6	6	1								1			1		1			
	D	6	4	1								1			1		1			1
Japan:																				
Kobe	C		2																	
Osaka Prefecture	C				1															
Taiwan	C			16																
Tokyo	C		3																	
Philippine Islands:																				
Bulacan Province	C				2		1													
	D				1		1													
Cebu Province	C													1						
	D													1						

Iloilo Province	C											1	13	3						
	D											1	8	2		1				
Iloilo	C				1															
	D				1															
Laguna Province	D			1																
Leyte Province	C									10	30	3	4							
	D									5	10	3	2							
Manila	C														1					
Samar Province	C									21	16	17	7	12		29	15	8	30	0
	D									11	12	11	9	8		21	15	5	22	0
Siam	C	8	8	1		1										1	1			
	D	7	4			1											1			
Bangkok	C		2																	
Straits Settlements: Singapore	C													1						
	D													1						
On vessels:																				
S. S. Shanghai Maru at Kobe from Shanghai	C		1		1															
S. S. President Wilson en route to Manila from Honolulu via Shanghai and Hong Kong	C			2																
	D			1																
S. S. Protesilus at Hong Kong from Shanghai	C				P															
S. S. Nikawa Maru at Hong Kong from Shanghai	C				P															
S. S. Arankola at Rangoon from Calcutta	C		1																	
S. S. Shantung at Swatow from Shanghai	C			1																
S. S. Yusang at Hong Kong from Shanghai	C					1														
S. S. Taisan Maru en route Tsingtao to Moji	C									1										

Place		April, 1932	May, 1932	June, 1932			July, 1932			August, 1932			September, 1932		
				1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-30
Indo-China (French) (see also table above):															
Annam [1]	C		134				8								
	D		15				4								
Cambodia [1]	C	25	18	13	16	13	11	5	2	6	4			4	2
	D	11	3	10	12	7	10	4	2	3	2			2	2
Cochin-China [1]	C	27	41	17	17	17	16	10	5	2	4	5	8	8	2
	D	18	29	16	12	14	15	8	4	1	4	3	7	7	2
Laos [1]	C	7													
	D	3													

[1] Reports incomplete.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE[1]

[C indicates cases; D, deaths; P, present]

Place		May 1–28, 1932	May 29–June 25, 1932	June 26–July 23, 1932	Week ended— July 30, 1932	August, 1932 6	13	20	27	September, 1932 3	10	17	24	October, 1932 1	8	15	22	29	Nov. 5, 1932
Argentina:																			
Chaco—Villa Angela	C											6							
	D											3							
Rosario	D	1																	
San Luis Province	C		2				1												
Belgian Congo	C	2																	
British East Africa (see also table below):																			
Tanganyika	C		20																
	D		11																
Uganda	C	37	69	83	10	17	16	19	27	24	27	22	20	24					
	D	31	62	79	9	14	14	19	27	19	25	17	19	21					
Canary Islands: Palma Island—Los Llanos	C	1																	
Ceylon: Colombo	C	5	13	6				1		2	1	2	3			2	2	4	1
	D	4	13	6						2	1	2	3			1	2	4	1
Plague-infected rats		8				2				1				1	1	1	1	3	1
Chile: Antofagasta—Plague-infected rats						3							1						
Dutch East Indies:																			
Surabaya	C					1						1							
	D					1						1							
West Java	C		196	180	70	67	63	54	47	64	65	83	82	119					
	D		195	180	70	67	63	51	48	63	64	83	80	113					
Ecuador. (See table below.)																			
Egypt:																			
Alexandria	C	12	4	5			1	5	1						1	3			
	D	3	4	2				5	1							3			
Assiout	C				1														
Beheira	C	2	2	1	1						1	1	1			1			
	D	3	1	2															
Beni Suef	C	2							1										
	D	3																	
Gharbieh	C		3												1	1			
	D		1																
Minieh	C			1							1	1		3	1				1
	D			1															

Great Britain: Liverpool—Plague-infected rats												[2] 1							
Hawaii Territory:																			
Hawaii Island—Hamakua—Kukaiau—Plague-infected rats		1	1																
Maui Island—																			
Makawao	C							1				1							
	D						1					1							
Plague-infected rats								2	2					1					
India	C	1,673	448	1,122	519	520	761	745	972	1,059	647	1,097							
	D	1,260	302	631	291	308	465	418	638	633	375	562							
Bassein	C	2	3	2	1	1	1	1	1					1					1
	D	2	3	1	1	1	1	1	1					1					1
Plague-infected rats								1							1				
Bombay	C	5	1								1	3				1	3		
	D	4	1	1				1			1	3				1	2		
Plague-infected rats		58	23	21	10	10	6	6	2	7	10	8	11	9	6	4	9	10	
Madras	C				5														
Madras Presidency	C	40	123	233	80	59	57	51	81	62	61	111							
	D	11	38	98	30	49	28	24	18	31	25	36							
Rangoon	C	1	1	2	1			2	3										
	D			2	1			2	3										
Plague-infected rats		3	3	5	1	3	1									2			
Indo-China. (See table below.)																			
Iraq: Baghdad	C		1	1			1	2		1			1					1	2
	D												1						
Madagascar. (See table below.)																			
Morocco	C			7															
Peru. (See table below)																			
Senegal. (See table below.)																			
Siam	C						1			6						1		1	
	D									3									
Southwest Africa.[3]																			
Syria: Beirut	C		1	4	1			1	1		3		1	2	1		1	4	2
United States:																			
California—																			
Los Angeles—Plague-infected rats		2	1																
San Benito County—Plague-infected ground squirrels						2													
On vessels:																			
Steamship Columbia, at Naples from Barcelona—Plague-infected rats			2																
S. S. City of Oxford at Liverpool from Alexandria—Plague-infected rats										1									
S. S. Figuig at Marseille from Bona and Philippeville	C									1									

[1] Including plague in the United States and its possessions.
[2] At dock where steamship City of Oxford was berthed.
[3] 184 cases of plague with 42 deaths were reported in Ovamboland, Southwest Africa, up to Oct. 1, 1932. Antiplague measures have been taken.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

Place		April, 1932	May, 1932	June, 1932	July, 1932	August, 1932	September, 1932	October, 1932
British East Africa (see also table above): Kenya	C	18	20	39	65	30	15	-
Ecuador:								
Province—								
Chimborazo	C	6	10	2	-	-	-	-
Loja	C	-	-	-	4	-	4	-
	D	-	-	-	3	-	2	-
Indo-China	C	9	2	1	2	2	-	1
	D	6	1	1	2	2	-	-
Madagascar:								
Province—								
Ambositra	C	19	-	2	20	9	-	-
	D	17	-	2	20	8	-	-
Antisirabe	C	21	26	10	31	45	-	-
	D	21	26	9	30	45	-	-
Maevatanana	C	-	-	-	1	1	-	-
Miarinarivo	C	6	1	3	10	5	-	-
	D	6	1	3	9	5	-	-
Moramanga	C	-	-	-	15	4	-	-
	D	-	-	-	15	4	-	-
Tamatave	C	-	-	1	2	2	-	1
	D	-	-	-	1	2	-	1
Tananarive	C	42	20	13	24	35	-	-
	D	40	20	12	24	35	-	-
Peru	C	2	5	2	-	-	-	-
Department—								
Lambayeque	C	-	-	2	-	1	-	-
Lima	C	-	-	-	1	-	2	2
	D	-	-	-	1	-	2	-
Lima	C	2	1	2	-	-	-	-
	D	-	-	1	-	-	-	-
Senegal								
Dakar [4]	C	-	-	-	10	37	7	-
	D	-	-	-	9	28	7	-
Louga [4]	C	-	3	1	4	1	2	-
	D	-	2	1	3	1	2	-
Rufisque [4]	C	-	3	21	28	23	8	-
	D	-	3	17	27	21	5	-
Thies [4]	C	-	-	8	16	5	15	-
	D	-	-	3	13	-	11	-
Tivaouane [4]	C	-	-	-	-	-	6	-
	D	-	-	-	-	-	7	-

[4] Reports incomplete.

SMALLPOX

[C indicates cases; D, deaths; P, present]

Place		May 1-28, 1932	May 29-June 25, 1932	June 26-July 23, 1932	Week ended— July 30, 1932	August, 1932: 6	13	20	27	September, 1932: 3	10	17	24	October, 1932: 1	8	15	22	29	Nov. 5, 1932
Algeria:																			
Algiers	C		2						1					1			1		
Constantine Department	C	2																	
Southern Territories	C				2														
Arabia:																			
Aden	C																1		
Argentina: Formosa Province	C											P							
Brazil:																			
Porto Alegre (alastrim)	C	4	5	7	5		4	1	4		4	6							
Santos	C			2															
British East Africa: Tanganyika	C	90	51	32	5	62	49	52	4	19	30	42	12	27					
	D		17				3	1	1			1		2					
British South Africa: Northern Rhodesia	C		4	45		1													
Canada:																			
British Columbia	C		1																
Manitoba	C			1	1												1		
Ontario	C	24		1		3					[1] 3						1		
Quebec	C		1																
Saskatchewan	C	13	3	11							[1] 1		6						
China:																			
Amoy	C	8	1																
	D	6	1																
Canton	C	42	10	3	1	2		1		1				2			6	4	
	D	1															1		
Foochow	C	P	P	P		P		P		P		P		P		P			
Hankow	C	5																	
Hong Kong	C	24	12	3		2													
	D	17	12	4		2													
Manchuria: Dairen	C	2	5																
	D	2	3																
Nanking	C			3															
Shanghai	C	33	6																
	D	13	3																
Tientsin	C	1	2																
Chosen. (See table below.)																			

[1] These cases of smallpox are for periods of 2 weeks.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		May 1-28, 1932	May 29-June 25, 1932	June 26-July 23, 1932	Week ended— July 30, 1932	August, 1932: 6	13	20	27	September, 1932: 3	10	17	24	October, 1932: 1	8	15	22	29	Nov. 5, 1932
Colombia: Cali	D							2											
Dahomey	C	2	24	8								6	2						
	D		7	6															
Dutch East Indies	C			6				1			1				1				
Egypt:																			
Alexandria	C	2	1	4	3	3	1	2	1	3	3	5	2	2	1	12	7	5	5
Cairo	C			1	1	2		1	1	2		1	3			6	4	2	4
Suez	C	1																	
Finland	C	1			1														
Gold Coast. (See table below.)																			
Great Britain:																			
England and Wales	C	268	140	104	18	25	16	17	13	10	9	19	7	23	17	12	33	34	
London	C	144	100	79	11	17	10	10	4	1	1	11	2	15	15	24		27	
London and Great Towns	C	218	128	95	15	21	14	17	12	5	4	17	4	21	17	3	9	7	
Greece. (See table below.)																			
Honduras:																			
Puerto Castilla	C	1	2	1										1					
Tegucigalpa	D								1										
Tela	C	1								1									
India	C	13,268	11,646	8,014	1,550	1,714	1,284	1,174	1,248	1,034	897	776							
	D	3,283	2,929	2,082	471	425	340	298	294	277	252	212							
Bassein	C						1												
	D							1											
Bombay	C	36	22	26	14	9	9	10	12	10	5	5	7	6	9	5	7	6	
	D	12	13	20	5	6	4	2	8	4	5	4	6	3	6	5	3	4	
Calcutta	C	93	64	40	9	6	9	5	2	6	6	9	5	3	1	13	6	28	
	D	67	47	33	7	4	5	4	1	4	2	1	3	3		8	5	8	
Chittagong	C	2																	
	D	1																	
Cochin	C			2															
Karachi	C	16	20	1	1			1		1	1			1					
	D	6	4		1						2								
Madras	C	47	22	35	11	13	7	16	19	16	10	6	14	20	25	30	24	33	
	D	11	8	7		4		2	2		3		1	1	3	9	7	6	
Moulmein	C		5			1			1	1	1								

Negapatam	C	3													1	1	1	1	
	D	1																	
Rangoon	C	66	29	26		1		4					1				1		
	D	28	11	6													1		
Tuticorin	C	4	1							7			7	6	6		9		
	D	5	1										1	2	3		3		
Vizagapatam	C			1															
India (French):																			
Karikal	C	11	2																
	D	7	1																
Pondichéry Territory	C	47	7	11	2	5	5	4	7	4	4	3	4	3	3	3			
	D	47	7	11	2	5	5	4	7	4	4	3	4	3	3	3			
Indo-China (see also table below):																			
Saigon and Cholon	C	113	18	7	2	4		2	2	1		1	1		1				
	D	30	17	7	2	4		2	2	1		2			1				
Iraq:																			
Baghdad	C	21	27	9	3		1		1	5			1	3		2	3	2	2
	D	8	12	1	1		1			1			1	1			2		2
Basra	C	8	8	4					3	1	1	1	2	10	5	16	18	17	21
	D	3	2	2					1		1	1	2		1	5	9	11	16
Ivory Coast. (See table below.)																			
Japan:																			
Kobe	C	10																	
	D	1																	
Nagasaki	C	13	3																
Osaka Prefecture [1]	C	82																	
Osaka	C	1																	
Mexico:																			
Chihuahua	D	1	5	1	2			1											
Jalisco (State)—Guadalajara	D	2	2																
Mexico, D. F.	C	17	18	16	3	3		6	5	2		2			4				
	D	1		3	1														
Monterrey	C	2																	
Saltillo	D	3	2	3			3		4	1							1		
San Luis Potosi	D	2	1															1	
Torreon	C	3	3											4	1			1	
	D	3	2																
Morocco. (See table below.)																			
Nigeria	C	1,043	234	123	350			22		18		65							
	D	333	33	15	24			4		2		13							
Palestine	C	1		1															
Persia	C											28				53			
	D											11				17			
Peru. (See table below.)																			
Poland	C	1	1				1												
	D	2	1																
Portugal:																			
Lisbon	C	29	25	10	6	5	4	1	4	1	2	2	2	2	2	3			
Oporto	C	24	23	29	5	12	5	1	8	1	6	3	1		4				

[1] 264 cases of smallpox were reported in Osaka Prefecture, Japan, from Mar. 1 to May 28, 1932.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		May 1–28, 1932	May 29–June 25, 1932	June 26–July 23, 1932	Week ended— July 30, 1932	August, 1932: 6	13	20	27	September, 1932: 3	10	17	24	October, 1932: 1	8	15	22	29	Nov. 5, 1932
Sarawak	C			7															
Siam	C	1	9																
Sierra Leone [3]	C		5		6					14		2							
Straits Settlements	C									1	1								
	D		3																
Sudan (Anglo-Egyptian)	C		3							1							8		
Syria. (See table below.)																			
Turkey (see also table below): Istanbul	C	1	2																
Union of Socialist Soviet Republics. (See table below.)																			
Union of South Africa:																			
Cape Province	C	P	P	P															
Orange Free State	C											P		P					
Transvaal	C	P	P																
Upper Volta	C	11	1					1											
	D	1																	
On vessels:																			
S. S. Tuscania at Suez from Bombay	C		1																
S. S. Tilawa at Singapore from Amoy and Hong Kong	C		1																
S. S. Marinix Van Ste. Aldegonde at Port Said	C			2															
S. S. Ethiopia at Rangoon from Shanghai	C		1																
S. S. Madras City at Kobe from Shanghai	C		1																
S. S. Ranjput at Cochin from Colombo	C			1															

[3] From Mar. 6 to July 9, 1932, 878 cases of smallpox, with 13 deaths, were reported in Sierra Leone.

Place		April, 1932	May, 1932	June, 1932 1–10	June, 1932 11–20	June, 1932 21–30	July, 1932 1–10	July, 1932 11–20	July, 1932 21–31	August, 1932 1–10	August, 1932 11–20	August, 1932 21–31	September, 1932 1–10	September, 1932 11–20	September, 1932 21–30
Gold Coast	C		2												
Indo-China (see also table above)	C	568	289	61	130	60	72	54	62	36	42	69	73		15
	D	241	83	27	41	31	20	9	29	16	17	28	36		6
Ivory Coast	C			19											
	D			1											
Syria: Beirut	C	2					1					1			

Place		April, 1932	May, 1932	June, 1932	July, 1932	August, 1932	September, 1932
Chosen	C	55	55	50	9	5	
	D	5	8	4	7	3	
Greece	C	8			2		
Morocco	C	101	101	27	11	19	24
Peru	C					35	166

Place		April, 1932	May, 1932	June, 1932	July, 1932	August, 1932	September, 1932
Turkey (see also table above)	C				3	30	
	D					3	
Union of Socialist Soviet Republics	C		3,289	1,672			

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

Place		Apr. 3–30, 1932	May 1–28, 1932	May 29–June 25, 1932	June 26–July 23, 1932	Week ended— July 30, 1932	August, 1932: 6	13	20	27	September, 1932: 3	10	17	24	October, 1932: 1	8	15	22	29
Algeria:																			
Algiers	C	40	61	30	33		4	1	5	26	6	2		2	5	3	3		
	D															2			
Bona	C															2			
Constantine Department	C			1	102	15	4	1											
Oran	C		4	10															
Argentina: Buenos Aires	C												1						
	D												1						

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, deaths; P, present]

Place		Apr. 3-30, 1932	May 1-28, 1932	May 29-June 25, 1932	June 26-July 23, 1932	Week ended— July 30, 1932	August, 1932 6	13	20	27	September, 1932 3	10	17	24	October, 1932 1	8	15	22	29
Bulgaria	C	45	38	15	10		3	1					1						
	D	9	3	2															
Chile:																			
Antofagasta	C		1	1															
Iquique	C			1	1														
Santiago	C	1	1	8		8	1	2	4	2	3	4							
Talcahuano	D						1												
China:																			
Hankow	C		2	1	1														
Tientsin	C		1																
Chosen. (See table below.)																			
Colombia: Cali	D														1				
Czechoslovakia. (See table below.)																			
Egypt:																			
Alexandria	C		1	8					1	1	3	1							
Beheira	C	14					15							21					
	D	5					1							7					
Dakahlia	C	1	69																
Gharbieh	C	5								1						1			
	D	2																	
Port Said	C			1	3	2	1					1					1		
Provinces	C	222	163	139	122		33		16	6				3					
	D	43	8	10	7		2												
Greece. (See table below.)																			
Guatemala. (See table below.)																			
Irish Free State:																			
Cork County—																			
Bandon	C																1		
Schull	C					1													
Dublin	C														1	1			
	D														1		1		
Kerry County—Dingle	C									1									

Roscommon County—																			
Leitrim	C		1																
	D		1																
Roscommon	C			1															
Lithuania. (See table below.)																			
Mexico:																			
Mexico, D. F	C	11	8	7	11		2		2	1	4	2	3			1			
	D	3	2	2	3				2	2	2	3	2						
Monterrey	C							1											
	D							1											
Torreon	C				1						6								
Morocco	C	34	19	26	6	1	2	4	1	1	5		1	1		1			
	D	1		3				1											
Palestine	C		1	4	1					2			4	1	1	3			1
Persia	C		123	110	54	7				3			3	3					
	D		4	6															
Peru. (See table below.)																			
Poland	C	414	380	204	101	11	9	7	2	6	5	3	12	18	33	50	19		
	D	39	25	14	8	1	1				1	1		1	1	4	3		
Portugal:																			
Lisbon	C			7															
Oporto	C	10	3	4										1					
Rumania	C	252	234	45	56	3	7	6	4	5	3	3	6	2	5				
	D	21	23	10	7	1	1						1	1					
Tunisia: Tunis	C	77	55	28	8	2	3	1											
	D	4																	
Turkey. (See table below)																			
Union of Socialist Soviet Republics. (See table below)																			
Union of South Africa.																			
Cape Province	C	P	P	P	P		P	P	P	P	P	P	P	P	P				
Natal	C	P	P	P	1									P					
Orange Free State	C	P	P	P	P		P	P	P	P		P	P	P	P				
Transvaal	C			P	P														
Yugoslavia. (See table below)																			

Place		March, 1932	April, 1932	May, 1932	June, 1932	July, 1932	August, 1932	September, 1932
Chosen: Seoul	C	4			2			
Czechoslovakia	C		1	5	1			
Greece	C	7	1		4	3	14	
Guatemala	C	42	5		19			
	D	3		8	3			
Lithuania	C	32	25	13	16	7		
	D	3	5	1				

Place		March, 1932	April, 1932	May, 1932	June, 1932	July, 1932	August, 1932	September, 1932
Peru	C						37	50
Turkey	C	6	1		4	7	8	6
	D	3				1	1	
Union of Socialist Soviet Republics	C	9,765		7,379	7,419			
Yugoslavia	C	5	29	34			1	
	D	1		6				

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

YELLOW FEVER

[C indicates cases; D, deaths; P, present]

Place		Apr. 3-30, 1932	May 1-28, 1932	May 29-June 25, 1932	June 26-July 23, 1932	Week ended— July 30, 1932	August, 1932: 6	13	20	27	September, 1932: 3	10	17	24	October, 1932: 1	8	15	22
Bolivia.[1]																		
Brazil:																		
Bahia State—Esplanada	C		P															
Ceara State	C	1												1				
	D	1		2										1				
Parahyba State	C			1														
	D			1								2						
Pernambuco State	D	1		1	6								[2] 2					
Nigeria	C		1															
Senegal	C																	8
	D																	5
Bakel—Kidira	C														1	4	1	
	D														1	4		
Upper Gambia	C													2			1	
	D													2				
Upper Volta	C				1													
	D				1													

[1] About 30 deaths from yellow fever occurred in southern Bolivia during the spring of 1932.

[2] Date uncertain.

UNITED STATES TREASURY DEPARTMENT

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Hugh S. Cumming, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. Williams, *Chief of Division*

The Public Health Reports are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

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CONTENTS

PUBLIC HEALTH REPORTS

VOL. 47 DECEMBER 2, 1932 NO. 49

PLASMOCHIN IN MALARIA PREVENTION

Experiments in Alabama

By J. N. BAKER, M. D., *State Health Officer*, and D. G. GILL, M. D., *Epidemiologist, Alabama State Board of Health*

As the result of work with the United Fruit Co., Barber and Komp (1) and Barber, Komp, and Newman (2) have reported that a small dosage of plasmochin renders a carrier noninfective to mosquitoes. Whitmore (3), also with the United Fruit Co., confirmed these findings. In their conclusions, Barber, Komp, and Newman (2) stated: "It is probable that the general use, in a population of such small dosage [1] of plasmochin would be safe and effective in reducing the transmission of malaria."

It was decided to test this conclusion in Alabama by the administration of plasmochin at regular intervals to all the people in a certain area and to observe the effect on the incidence of malaria during the season.

Two rural areas were selected for the purpose of the experiment; one was in Macon County and the other was in Montgomery County. They were chosen because it was known that malaria was prevalent among the population and because they were typical in regard to housing conditions, screening, economic status, medical care, permanency of residence, etc., of the tenant farmer. Similar areas near by were used for control. In the case of Macon County the control area was in all ways similar to that of the experimental group, as much of it was part of the same plantation. There was chosen as a control for the Montgomery County area, the adjoining portion of Autauga County, separated by the Alabama River from the experimental area. The living conditions of these people were similar, except the density of population was not so great.

An initial survey included the history of malaria for the preceding year, together with an examination of thick blood films. The history of malaria was obtained from the head of the household, and only those cases were included which gave histories of definite clinical

[1] This dosage varied from 0.005 gm to 0.06 gm plasmochin.

attacks. It is appreciated that clinical histories may not always be scientifically accurate; but the same person obtained the history from both groups, and quite likely the total error in one area was balanced by that of the other.

SEASON OF 1930

Commencing the last week in June and continuing until the middle of October, every person in the demonstration areas received one tablet of plasmochin compound per week (containing 0.01 gm plasmochin and 0.125 gm quinine sulphate). The drug was always given in the presence of field workers, and so the total dosage was known. The control groups were likewise visited each week to ascertain the presence of clinical malaria, while a similar record was kept of all cases occurring in the demonstration area. At the conclusion of the season, a second blood survey of all groups was made. Owing to rains and road conditions, it was impossible to obtain this second test on all the controls of the Montgomery County experiment, but slightly over 50 per cent of the group were retested.

The results of this experiment of 1930 were as follows:

History of malaria attacks during year

MACON COUNTY

Area	Number in area	1929		1930			
		Number attacked	Attack rate per 100	Number attacked	Attack rate per 100	Ratio, 1930 to 1929	Plasmochin, average dosage
							Tablets
Experimental area	475	349	73.5	87	18.3	0.25	16.1
Control area	534	391	73.2	167	31.3	.43	

MONTGOMERY-AUTAUGA COUNTIES

Area	Number in area	Number attacked (1929)	Attack rate per 100 (1929)	Number attacked (1930)	Attack rate per 100 (1930)	Ratio, 1930 to 1929	Plasmochin, average dosage
Experimental area	370	229	61.9	23	6.2	0.10	16.3
Control area	300	105	35.0	21	7.0	.20	

OBSERVATIONS

There was a marked reduction in malaria in all areas as compared with 1929, but this reduction was much more marked in the demonstration areas. Statistically, the odds against this reduction being due to chance alone are very great; and so it is believed that it may be considered significant. The blood surveys taken at the beginning and end of the experiment did not reveal any difference in favor of the plasmochin group. In both groups the percentage of positive bloods was about four times as high in November as in June. However, since plasmochin is claimed to exercise a selective action on the

sexual forms of the parasite, it would not be expected to clear the peripheral blood of all parasites.

SEASON OF 1931

The results of the experimental work carried out during the preceding summer seemed encouraging and led to a continuation of the work during 1931. Based on our experiences of 1930, certain changes were made in the method of conducting operations.

(1) One large area in Macon County was selected and the personnel concentrated on this one experiment. An area of about 31 square miles, with a population of about 1,100 people, was used for demonstration, and an area of about 36 square miles immediately adjoining and with a similar population group was used as control. This part of Macon County is a typical rural area, in which farming is the sole industry. Most of the population is composed of negro tenant farmers and their families. Screening is practically nonexistent, while breeding areas are extensive in normal years.

(2) The dosage of plasmochin was increased to one tablet twice a week (each tablet containing 0.01 gm plasmochin and 0.125 gm quinine sulphate).

(3) The field workers reported each day all suspicious cases of malaria. These were visited within 24 hours by the county health officer, and a definite diagnosis was made. This diagnosis was confirmed in some cases by a positive laboratory report; but if the clinical picture was typical of the disease, it was so diagnosed.

(4) In order to prove the presence of *Anopheles quadrimaculatus* mosquitoes in the areas, 10 stations were set up in each group and catches were made at weekly intervals.

The original survey was completed about the middle of June, 1931, and plasmochin was started June 20. The final blood survey was conducted October 26 to November 15, 1931, the last plasmochin dose being given October 24.

The results were as follows:

History of malaria attacks during year

Area	1930			1931			
	Number in area	Number attacked	Attack rate per 100	Number attacked	Attack rate per 100	Ratio, 1931 to 1930	Plasmochin, average dosage
							Tablets
Experimental area	1,093	222	20.2	38	3.5	0.17	31.13
Control area	861	108	12.4	76	8.8	.71	

Anopheles quadrimaculatus mosquitoes captured

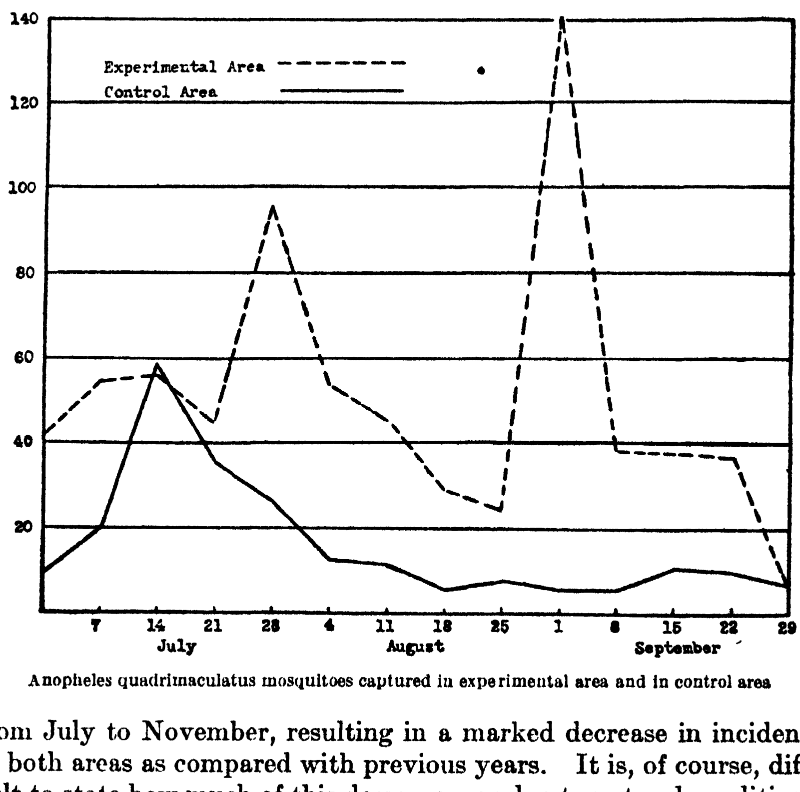
Area	June	July				August				September					Total	Average
	30	7	14	21	28	4	11	18	25	1	8	15	22	29		
Experimental area	42	51	53	44	97	51	46	29	24	141	38	38	36	7	697	49.79
Control area	9	19	59	36	27	13	12	6	8	6	6	11	10	7	229	16.36

Incidence of cases

Area	July	August	September
Experimental area:			
Number	13	12	13
Rate per 1,000	11.9	11.0	11.9
Control area:			
Number	11	30	34
Rate per 1,000	12.8	34.8	39.5

OBSERVATIONS

For the second consecutive year climatic conditions were unfavorable for the propagation of malaria. There was very little rainfall



Anopheles quadrimaculatus mosquitoes captured in experimental area and in control area

from July to November, resulting in a marked decrease in incidence in both areas as compared with previous years. It is, of course, difficult to state how much of this decrease was due to natural conditions, but the mosquito catches showed that the control area was more

affected by the drought than was the demonstration area. It is apparent, therefore, that lack of *Anopheles* mosquitoes was not responsible for all the decrease in the plasmochin area. Statistically, this decrease can be shown to be outside the limits of normal variation and to be significant.

Since the foregoing experiments were conducted, other workers have reported favorably on the action of plasmochin. James, Nichol, and Shute (4) found that plasmochin administered in doses of 0.02 gm three times a day prevented the development of malaria in 10 volunteers bitten by mosquitoes heavily infected with the sporozoites of benign tertian malaria. Four controls without plasmochin developed the disease within 14 days.

Barber, Rice, and Brown (5), working in Liberia, found that plasmochin in doses of 0.01 gm administered twice weekly to all the inhabitants of two camps caused a marked fall in the mosquito infection rate of these camps. In their discussion they state:

> The fall in the mosquito infection rate of the two plasmochin-treated camps was so large as to indicate a local disappearance, or at least a great reduction, in gametocyte carriers in the treated population. The minimum rate occurred during a period when plasmochin would presumably be most effective and was correlated with a fall in the crescent rate as shown by blood surveys. The anopheline infection rate was high in the two camps before treatment and rose after the treatment had been discontinued. The infection rate of the control camps remained high during the whole period. The most probable explanation of the fall in the mosquito infection rate is that the plasmochin treatment sterilized human carriers of viable gametocytes. The alternate explanation, that effective carriers happen to be absent during this period, is the least probable one.
>
> The results were so definite that we advised a second trial of plasmochin in the same plantation. This should be carried out over a wider area and be continued for a longer time. Weekly instead of semiweekly doses may be tried, and small amounts of quinine may be added to the plasmochin. In the experiment just described we used plasmochin alone in order to test a single factor.

CONCLUSIONS

The results of these two experiments, covering two consecutive years, suggest that plasmochin compound in a dosage of one to two tablets per week (each tablet containing 0.01 gm plasmochin and 0.125 gm quinine sulphate), when administered to all the inhabitants of a district, will materially lessen the incidence of malaria. Such a dosage is both safe and convenient. If further experience confirms these results, it would seem that a valuable addition has been made to the present methods of malaria control, which therapeutic control may be further enhanced through scientific chemical study of the potentialities embraced in plasmochin.

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(3) Whitmore, E. R.: The place of plasmochin in malaria control. Eighteenth Annual Report, Medical Department, United Fruit Co., 1929, pages 30–37.
(4) James, S. P.; Nichol, W. D.; and Shute P. G.: On the prevention of malaria with plasmochin. Lancet 2, 341 (1931).
(5) Barber, M. A.; Rice, J. B.; and Brown, J. Y.: The effect on the infection rate of Anopheles of the plasmochin treatment of a group of employees. Am. Jour. Hygiene, May, 1932, pages 601–622.

RECENT COURT DECISIONS ON MILK CONTROL*

By James A. Tobey, LL. B., Dr. P. H., *Director of Health Service, The Borden Company*, New York; Member of the New York Bar

One of the few stabilizing features of modern American civilization is the fact that basic principles of law are less liable to sudden fluctuations and the whims of progress than are most of our social, economic, and scientific customs and procedures. On the significant subject of public hygiene, the law remains satisfactorily static and thus contributes to the proper advancement of public-health administration.

This steadying influence has been well exemplified in the recent court decisions on milk control. During the four years that have elapsed since my last report to you on this subject, courts of final resort in more than a dozen States have handed down a score of opinions regarding various aspects of milk regulation. Some of the most sapient essays on this phase of public health have, in fact, been written not by sanitarians but by judges.

MILK CONTROL

"Milk is in universal use as a food," wrote the chief justice of Connecticut in a recent case.[1] "It is peculiarly liable to contamination and adulteration. Therefore, in the interest of public health and safety, the regulation of its production, marketing, and sale are held to be within the proper exercise of the police power of the State. This the State may effectuate directly by its statute, or it may delegate its regulatory power to an official board or officer, or to a municipality."

*Presented at the 47th Conference of State and Provincial Health Authorities of North America, Washington, D. C., June 2, 1932.

[1] Shelton v. City of Shelton (Conn. 1930), 150 A. 811.

After setting forth that this power may be either exercised or delegated directly or completely, this opinion continues: "The State may determine the standard of quality, prohibit the production, sale, or distribution of milk not within the standard, divide it into classes, and regulate the manner of their use, so long as these standards, classes, and regulatory provisions be neither unreasonable nor oppressive. The many recorded instances in which the courts have sustained this power of regulation bear witness to the liberality of their viewpoint where the public health and safety are concerned." [2] Making due allowance for the redundancy which is characteristic of legal phraseology, this is an admirable statement of an established principle in public health law. Having set forth this fundamental so clearly, the court then proceeded to hold invalid a city ordinance prohibiting the sale of milk at retail unless it was produced from tuberculin-tested cattle, or had been pasteurized.

From the scientific point of view this decision might seem contrary to the best interests of public health, but it was legally correct because the ordinance in question was in direct conflict with the State law. Since the Connecticut Legislature, in its wisdom, or lack of it, had decided that raw milk which was clean and apparently not detrimental to public health could be sold in the State under certain conditions, the city as a mere agent of the State could not decide otherwise. "We are not now passing upon the merit or the reasonableness of the tuberculin test or of pasteurization," said the court. "Primarily these are for legislative, not judicial, consideration."

PASTEURIZATION

A number of other courts have, however, been less reluctant to adjudicate these matters. In the neighboring State of Rhode Island a store-keeper attempted to restrain by injunction the enforcement of a State law requiring all pasteurized milk sold in Rhode Island to be actually pasteurized in the State, except that pasteurization plants situated in a "local milk shed" could be licensed to provide milk within the State.

Because of various legal technicalities and the incompleteness of the record, the supreme court refused to pass on the constitutionality of this law and sent the case back to a lower tribunal, the superior court, for further testimony. In the course of the decision,[3] however, the following significant remarks were delivered on the subject of pasteurization:

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[2] These recorded instances will be found in the following useful pamphlets:

Tobey, J. A.: Legal aspects of milk control. Reprint No. 939, U. S. Public Health Service. 1924.

Tobey, J. A.: Court decisions on pasteurization. Reprint No 1168. U. S Public Health Service. 1927.

Walker, H.: Regulating the production, handling, and distribution of milk. Reprint No. 1240. U. S. Public Health Service. 1928.

Tobey, J. A.: The legal phases of milk control. Reprint No. 1343. U. S. Public Health Service. 1929.

[3] First Nat. Stores v. Lewis (R. I. 1931), 155 A. 534.

"We may take judicial notice that milk is a highly perishable product, subject to rapid deterioration, and easily contaminated. Its production and sale are, therefore, subject to reasonable regulation in the interest of public health. We may also take judicial notice of the fact that pasteurization is one of the accepted methods of protecting the public in the use of this essential article of diet, but we may not extend the principle of judicial notice to the methods and technique of the process."

In a recent Oklahoma case [4] upholding a low fee for the inspection of pasteurizing plants and a different fee for dairies producing raw milk, a justice of the supreme court wrote that, "The public health regulations and the authorities on public health agree that the process of pasteurization is such as to kill bacteria existing in milk." If the court had been a little more meticulous, the opinion should have stated that proper pasteurization destroys about 90 per cent of the bacteria in milk, including all of a pathogenic nature that might be present.

TUBERCULIN TESTING

State laws dealing with tuberculin testing have come before the courts of last resort in six instances during the past three years and in every case these laws have been sustained. In one instance a judge of a Federal circuit court of appeals held that an inspector of the United States Bureau of Animal Industry was acting beyond his powers when he demanded the right to test the cattle of a conscientious objector in Ohio who had forcibly resisted the State veterinarian and had also obtained a temporary injunction in a State court restraining the application of this alleged nefarious procedure.[5] This case lays down the rule that the making of the tuberculin test on cattle not intended for immediate shipment in interstate commerce is purely a State function and no business of the Federal authorities.

This decision does not, of course, opine that the test itself is in any way improper or invalid. In 2 cases in Nebraska, 1 in Iowa, 1 in California, and 1 in Washington various aspects of State laws on tuberculin testing have been definitely upheld. Of these five decisions, that delivered by the supreme court of Iowa is particularly notable, as it reviews at length the existing legal principles on this important subject.

In this case [6] an offended dairyman attempted to show that the State law for the control of bovine tuberculosis was unconstitutional, with respect to both the Federal and State constitutions. The court held, however, that the legislation in question was justified

[4] Stephens v. Oklahoma City, 1 P. (2d) 367.
[5] Whipp v. U. S. (Ohio, 1931), 47 Fed. (2d) 496.
[6] Loftus v. Dept. of Agr. of Iowa (Iowa, 1930), 232 N. W. 412.

under the police power, and cited 13 other decisions in various States in which similar laws had been sustained. This court also declared that a tuberculous animal is a nuisance and may be quarantined or summarily destroyed, such destruction not denying to the owner his right and privilege of due process of law.

In the determination of this cause, the Iowa court quoted with approval the findings in the Nebraska and California cases reported a short time prior to this one. In the Nebraska case of 1930[7] a provision in the law that breeding cattle must be tested under certain conditions, but that feeding cattle need not be, was found not to be unreasonable. "That the existence of tuberculosis in breeding and dairy cattle is a menace to the public health both of infants and adults is a matter of common knowledge," said the court, although all scientists might not agree with regard to the danger to adults. The validity of this bovine tuberculosis law was reiterated in another case in 1931.[8]

In the California case [9] the question was whether payment for the destruction of diseased animals was proper under the State constitution. The court held that the legislature might have decided that no compensation should have been paid, but since it did not the funds permitted by statute must be given by the State to the unfortunate owner of the diseased animals. Here again the court waxed dogmatic on the subject of public health, saying:

"That tuberculosis is a dangerous and infectious disease which attacks both human beings and domestic animals, that it is prevalent throughout the State among both human beings and domestic animals, and that it is communicated to human beings, especially children, by milk and other food products from infected animals stand undisputed."

The Washington case[10] was one in which there was another definite sustention of the State bovine tuberculosis law as a valid exercise of the police power.

LICENSES AND PERMITS

So much for tuberculin testing and pasteurization. Half a dozen other cases on milk regulation have been concerned with licensing requirements. In the District of Columbia, for example, it was held by the court of appeals last January (1932) that the local law requiring all sellers of cream to have a permit from the District health officer applies to a canned product known as "Pantry Cream," which the manufacturers claimed was exempt because it was sterilized and consequently must be pure. That argument evidently did not impress the court any more than it had impressed the health officer.[11]

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[7] State v. Splittberger (Nebr., 1930), 119 Nebr. 436, 229 N. W. 332.
[8] State v. Knudtsen (Nebr., 1931), 236 N. W. 696.
[9] Patrick v. Riley (Calif., 1930), 287 P. 455.
[10] Hacker v. Barnes (Wash., 1932), 7 P. (2d) 607.
[11] Leaman v. D. C. (D. C., 1932), 60 Wash. L. R. 116.

Two of the license cases arose in Oklahoma. In one of them [12] it was held by the criminal court of appeals that a license fee of $1 per head for each cow was not exorbitant, especially since the defendant who appealed from a conviction for failure to pay it had offered no evidence to show that the fee was unreasonable. In the other case [13] the supreme court held that it was reasonable for the legislature to classify the local dairy industry as "inspected dairies, farm dairies, and pasteurizing plants," and impose heavy licensing fees on the first, moderate ones on the second, and mild ones on the pasteurizing plants, even granting that the object was regulation rather than the raising of revenue. The court stated that it was obvious that it cost more to inspect raw than pasteurized milk.

The revocation by a city health department of a permit to sell milk, for good and sufficient reasons, was upheld recently by the appellate division of the New York Supreme Court.[14]

In Arkansas the supreme court upheld the conviction of a dairyman who had failed to secure and pay for a permit as required by the rules of a district board of health.[15]

The most interesting of the cases on licenses is a New Hampshire decision,[16] in which a rule of a city board of health denying licenses to nonresidents was held to be improper and illegal. The State law said that boards of health *may* grant licenses to sell milk to properly qualified persons. The board of health of Manchester, N. H., had voted on March 26, 1928, that no more distributor's licenses be granted to nonresidents, except to those persons who already possessed them on this date. A well-qualified dairyman who had never had such a license applied in 1931 and was refused because his dairy was 6 miles beyond the city limits. He thereupon sued to compel the issuance of the license.

The court held in the first instance that the word "may" in the State law should be construed as meaning "shall," so that a board of health must issue a license to a person who satisfied the requirements. Next it held that the limitation on nonresidents was unreasonable and if set forth in a law instead of a resolution would have been unconstitutional, a view which is undeniably correct.

In an Oregon case which I reported to you in 1928, it was held that the milk regulations of a city apply to dairies beyond the city limits if the milk from those dairies is sold within the city.[17]

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[12] Grider v. City of Ardmore (Okla., 1930), 287 P. 776.
[13] Stephens v. Oklahoma City (Okla., 1931), 1 P. (2d) 367.
[14] Morris v. Dept. of Health of City of New York (N. Y., 1931), 254 N. Y. S. 90.
[15] Belzung v. State (Ark., 1931), 36 S. W. (2d) 397.
[16] Whitney v. Watson (N. H., 1931), 157 A. 78.
[17] Korth v. Portland (Oreg., 1927), 261 P. 895.

Another interesting case [18] concerning a general State milk regulation came up in the Federal district court in Florida. This cause was brought by a citizen of Georgia who felt aggrieved by the Florida law prescribing milk standards, requiring permits, except from Florida owners of five cows or less, and imposing a penalty of not more than $5,000 or imprisonment for 12 months. The Georgia gentlemen felt that this was class legislation, not wholly consistent with southern hospitality. He also had to label his milk as coming from Georgia. The court held that the State of Florida had the undeniable right to protect public health by such legislation, that the classification did not infringe any constitutional rights or cause irreparable injury, and that labeling the source of the milk created no inequity.

ADULTERATION AND LIABILITY

Three other recent cases on miscellaneous aspects of milk deserve brief mention. In Massachusetts the violator of a law prohibiting the sale of milk from which cream had been removed attempted to squirm out of his conviction by asserting that he had not received written notice to comply with the legal standards. The court upheld the conviction, pointing out that the gentleman in question had the statutes mixed up.[19]

In a New Jersey case [20] a man who became ill after consuming milk was awarded $2,500 damages, and his wife who tasted the milk to ascertain what was wrong with it and also became sick, got $500. The court held that there was no contributory negligence in her action. In Illinois a section of a "filled milk law" was pronounced unconstitutional because it prohibited the sale of a nut oil and evaporated skim milk product which the court considered to be wholesome and, in its own words, "Not poisonous or explosive." [21]

CONCLUSION

From this brief review of the 20 recent court decisions on various aspects of milk control, it is gratifying to note that the courts in this country continue to be liberal and progressive in upholding all reasonable regulation of such an essential food as milk. The courts seem to recognize what scientists concede, that milk is our most nearly perfect food,[22] and that the best interests of public health are maintained and promoted when the cleanliness and safety of milk are properly safeguarded.

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[18] Noble v. Carlton (Fla., 1930), 36 Fed. (2d) 967.
[19] Commonwealth v. Rapoza (Mass., 1931), 178 N. E. 530.
[20] McAteer v. Sheffield Farms (N. J., 1930), 152 A. 469.
[21] People v. Carolene Products Co. (Ill., 1931), 177 N. E. 698.
[22] Crumbine, S. J., and Tobey, J. A.: The Most Nearly Perfect Food. Williams and Wilkins. 1929.

These able decisions confirm established public health law that tuberculin testing of dairy cattle and pasteurization requirements are proper under the police power of the State and that licenses may be granted or revoked under conditions imposed by health authorities so long as there is no oppressive or arbitrary action.

These cases also demonstrate that the actions of public health authorities must be conducted in a strictly legal manner, with due guarantee of the constitutional rights of individual citizens and the people as a whole. If regulations or procedures are defective, the courts have no choice but to uphold the law as it should be, and this they will do despite their willingness to support all reasonable public-health measures. Public-health officials must bear in mind that prevention applies to law as well as to sanitary science, and they should see to it that legislation and law enforcement comply with adjudicated standards and modern jurisprudence.[23]

DEATHS DURING WEEK ENDED NOVEMBER 12, 1932

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Nov. 12, 1932	Corresponding week, 1931
Data from 85 large cities of the United States:		
Total deaths	7,215	7,613
Deaths per 1,000 population, annual basis	10.3	11.0
Deaths under 1 year of age	539	604
Deaths under 1 year of age per 1,000 estimated live births [1]	45	47
Deaths per 1,000 population, annual basis, first 45 weeks of year	11.0	11.8
Data from industrial-insurance companies.		
Policies in force	70,000,097	74,289,657
Number of death claims	9,464	12,908
Death claims per 1,000 policies in force, annual rate	7.1	9.1
Death claims per 1,000 policies, first 45 weeks of year, annual rate	9.5	9.7

[1] 1932, 81 cities; 1931, 77 cities.

[23] See Tobey, J. A.: Public Health Law. Williams & Wilkins. 1926.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended November 19, 1932, and November 21, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended November 19, 1932, and November 21, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Nov. 19, 1932	Week ended Nov. 21, 1931	Week ended Nov. 19, 1932	Week ended Nov. 21, 1931	Week ended Nov. 19, 1932	Week ended Nov. 21, 1931	Week ended Nov. 19, 1932	Week ended Nov. 21, 1931
New England States.								
Maine	2	2	4	1	1	147	1	0
New Hampshire	1					5	0	0
Vermont		5			4	41	0	0
Massachusetts	45	59	4	9	78	127	2	3
Rhode Island	2	3				126	1	0
Connecticut	3	4	29	8	11	17	2	0
Middle Atlantic States.								
New York	58	106	[1] 18	[1] 9	345	199	7	9
New Jersey	17	41	19	9	211	45	2	1
Pennsylvania	113	159			196	319	4	4
East North Central States								
Ohio	72	90	4	4	86	78	1	1
Indiana	110	97	52	5	2	18	3	1
Illinois	130	123	28	5	47	34	14	6
Michigan	28	56	25	1	157	24	3	2
Wisconsin	9	16	22	15	115	22	0	2
West North Central States:								
Minnesota	23	28		2	110	36	0	0
Iowa	13	19			1	1	1	0
Missouri	80	92	3	3	11	20	0	0
North Dakota	7	6			36		0	0
South Dakota	1	16	5		3	52	0	0
Nebraska	27	20	1	2	2	6	0	0
Kansas	30	87	1		7	19	0	1
South Atlantic States·								
Delaware	1	36	1	4		2	0	0
Maryland [2,3]	24	78	13	14	12	7	1	2
District of Columbia	3	17	3	2	1	3	1	0
Virginia	48				43		0	1
West Virginia	49	55	10	16	35	110	1	0
North Carolina	66	167	10	35	68	86	0	1
South Carolina	30	34	500	452	17	14	0	0
Georgia [3]	45	86		45		3	0	7
Florida	87	26	3	1	1	4	0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended November 19, 1932, and November 21, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Nov. 19, 1932	Week ended Nov. 21, 1931	Week ended Nov. 19, 1932	Week ended Nov. 21, 1931	Week ended Nov. 19, 1932	Week ended Nov. 21, 1931	Week ended Nov. 19, 1932	Week ended Nov. 21, 1931
East South Central States:								
Kentucky	50	143	55	-------	38	-------	0	4
Tennessee	67	152	271	26	1	2	0	5
Alabama [3]	55	102	204	47	3	6	0	5
Mississippi	38	79	-------	-------	-------	-------	0	1
West South Central States								
Arkansas	17	56	24	9	-------	21	0	0
Louisiana	35	59	23	6	7	6	0	2
Oklahoma [4]	56	151	31	20	2	31	0	0
Texas [3]	145	115	71	11	-------	2	0	1
Mountain States:								
Montana	2	4	1	-------	153	60	0	1
Idaho	5	9	12	-------	-------	-------	0	0
Wyoming	-------	-------	-------	-------	5	1	0	0
Colorado	14	4	-------	-------	3	4	0	1
New Mexico	18	31	146	-------	3	-------	1	1
Arizona	-------	10	175	2	-------	1	0	0
Utah [2]	-------	2	333	10	-------	3	0	1
Pacific States								
Washington	9	13	1	-------	4	28	0	0
Oregon	7	4	81	28	39	12	0	0
California	75	110	903	72	49	181	4	4
	1,667	2,522	3,086	873	1,907	1,923	49	67

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Nov. 19, 1932	Week ended Nov 21, 1931	Week ended Nov. 19, 1932	Week ended Nov 21, 1931	Week ended Nov 19, 1932	Week ended Nov 21, 1931	Week ended Nov 19, 1932	Week ended Nov. 21, 1931
New England States:								
Maine	0	1	10	25	0	0	4	2
New Hampshire	0	2	19	2	0	0	1	0
Vermont	0	4	8	5	0	8	0	0
Massachusetts	0	14	265	237	0	0	3	7
Rhode Island	0	0	24	19	0	0	0	0
Connecticut	0	3	55	58	0	0	1	1
Middle Atlantic States:								
New York	5	42	409	385	22	3	18	21
New Jersey	5	13	154	143	0	0	6	7
Pennsylvania	10	14	416	403	0	0	23	64
East North Central States:								
Ohio	0	5	322	397	49	14	18	27
Indiana	3	0	131	106	8	6	7	11
Illinois	5	17	361	306	0	23	21	25
Michigan	2	6	210	228	11	4	7	16
Wisconsin	1	14	89	72	0	14	2	1
West North Central States								
Minnesota	1	20	85	31	2	1	2	1
Iowa	1	5	26	55	6	33	0	6
Missouri	0	1	93	77	1	8	5	14
North Dakota	0	0	4	24	7	30	1	3
South Dakota	0	0	12	8	0	20	0	3
Nebraska	1	2	45	19	7	1	2	2
Kansas	2	0	102	51	2	8	3	7
South Atlantic States:								
Delaware	0	0	3	10	0	0	1	0
Maryland [2, 4]	0	2	92	126	0	0	12	27
District of Columbia	0	0	7	27	0	0	6	5
Virginia	2	-------	86	-------	0	-------	13	-------
West Virginia	0	0	71	50	0	1	17	37
North Carolina	0	3	99	203	0	0	3	5
South Carolina	0	2	12	16	1	0	7	11
Georgia [3]	0	0	36	40	0	0	15	16
Florida	0	0	8	9	0	2	2	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended November 19, 1932, and November 21, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Nov. 19, 1932	Week ended Nov. 21, 1931	Week ended Nov. 19, 1932	Week ended Nov. 21, 1931	Week ended Nov. 19, 1932	Week ended Nov. 21, 1931	Week ended Nov. 19, 1932	Week ended Nov. 21, 1931
East South Central States:								
Kentucky	1	0	56	102	4	12	14	31
Tennessee	2	0	68	87	0	8	23	24
Alabama [3]	0	1	41	55	1	1	2	19
Mississippi	2	0	28	36	0	9	0	10
West South Central States:								
Arkansas	0	1	29	35	0	0	6	14
Louisiana	2	0	24	41	1	1	8	28
Oklahoma [4]	1	1	28	45	0	10	19	32
Texas [3]	0	0	93	59	12	9	6	17
Mountain States:								
Montana	0	0	16	34	0	0	3	2
Idaho	0	0	2	8	4	1	0	2
Wyoming	0	0	6	5	0	0	0	0
Colorado	1	0	26	23	0	2	1	4
New Mexico	0	0	12	9	1	1	8	12
Arizona	0	0	9	4	0	0	0	1
Utah [2]	0	0	2	15	0	0	1	0
Pacific States:								
Washington	4	2	44	43	4	9	2	7
Oregon	1	0	27	20	1	22	0	3
California	2	5	179	134	0	3	11	14
	54	180	3,944	3,887	144	264	304	539

[1] New York City only.
[2] Week ended Friday.
[3] Typhus fever, week ended Nov. 19, 1932, 11 cases: 1 case in Maryland, 3 cases in Georgia, 3 cases in Alabama, and 4 cases in Texas.
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week:

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
October, 1932										
Alabama	3	505	93	389	10	75	6	309	1	91
District of Columbia		18	5		5	1	10	54	0	3
Georgia	1	262	163	414	29	16	4	121	0	105
Illinois	22	474	61	17	132		26	1,107	8	145
Louisiana	3	141	48	116	11	23	6	60	4	51
Maryland	5	96	19		9		6	253	0	96
Montana	2	1	26		506		0	43	12	22
New York	16	198		4	473		46	948	8	139
North Carolina	3	410	41		170	71	6	435	1	42
Ohio	4	434	198	4	247		6	1,621	48	173
Pennsylvania	11	411		3	499	2	238	1,148	0	226
Rhode Island		26	1		5		0	94	0	5
South Carolina		264	1,563	1,581	56	262	1	47	1	76
West Virginia	2	310	40		75		3	340	1	198

October, 1932

	Cases
Anthrax:	
New York	1
Pennsylvania	1
Chicken pox:	
Alabama	12
District of Columbia	9
Georgia	26
Illinois	1,043
Louisiana	8
Maryland	121
Montana	161
New York	854
North Carolina	154
Ohio	984
Pennsylvania	1,164
Rhode Island	18
South Carolina	47
West Virginia	108
Dengue:	
Georgia	1
Louisiana	4
South Carolina	6
Diarrhea:	
Maryland	91
South Carolina	417
Diarrhea and enteritis:	
Ohio	18
Dysentery:	
Georgia	12
Illinois (amebic)	2
Illinois (bacillary)	13
Louisiana	3
Maryland	28
New York	41
Pennsylvania	4
Food poisoning:	
Ohio	25
German measles:	
Illinois	10
Maryland	9
Montana	1
New York	45
North Carolina	26
Ohio	14
Pennsylvania	21
South Carolina	2
Hookworm disease:	
Louisiana	106
South Carolina	105
Impetigo contagiosa:	
Maryland	112
Montana	54
Lead poisoning:	
Illinois	4
Maryland	2
Ohio	19
Leprosy:	
Louisiana	1
Lethargic encephalitis:	
Alabama	3
Georgia	1
Illinois	6
Louisiana	5
Maryland	1

	Cases
Lethargic encephalitis—Continued.	
New York	6
Ohio	2
Pennsylvania	5
Mumps:	
Alabama	79
Georgia	16
Illinois	98
Louisiana	4
Maryland	62
Montana	16
Ohio	83
Pennsylvania	548
Rhode Island	14
South Carolina	35
West Virginia	2
Ophthalmia neonatorum:	
Illinois	6
Louisiana	1
Maryland	3
New York	3
Ohio	63
Pennsylvania	8
South Carolina	25
Paratyphoid fever:	
Georgia	1
Illinois	1
Louisiana	1
New York	11
North Carolina	2
Ohio	1
South Carolina	5
Psittacosis:	
Illinois	1
Montana	1
Puerperal septicemia:	
Illinois	5
Ohio	7
Pennsylvania	24
Rabies in animals:	
Illinois	2
Louisiana	5
Maryland	1
New York [1]	2
South Carolina	13
Rabies in man:	
Illinois	1
Rocky Mountain spotted fever:	
Montana	1
Scabies:	
Maryland	8
Montana	30
Septic sore throat:	
Georgia	32
Illinois	13
Louisiana	6
Maryland	5
Montana	3
New York	4
North Carolina	14
Ohio	143
Rhode Island	2
South Carolina	4

	Cases
Silicosis:	
Montana	4
Tetanus:	
Illinois	7
Louisiana	6
Maryland	1
New York	4
Ohio	1
Pennsylvania	7
Tick paralysis:	
Montana	1
Trachoma:	
Illinois	7
Montana	6
Ohio	14
Pennsylvania	2
Trichinosis:	
Illinois	1
Montana	1
New York	8
Tularaemia:	
Georgia	4
Illinois	1
Maryland	1
West Virginia	2
Typhus fever:	
Alabama	48
District of Columbia	1
Georgia	38
Louisiana	5
Maryland	2
New York	1
North Carolina	4
South Carolina	4
Undulant fever:	
Georgia	2
Illinois	8
Louisiana	2
Maryland	3
Montana	1
New York	22
North Carolina	1
Ohio	7
Pennsylvania	3
Vincent's angina:	
Illinois	22
Maryland	8
New York [1]	115
South Carolina	2
Whooping cough:	
Alabama	48
District of Columbia	25
Georgia	72
Illinois	268
Louisiana	6
Maryland	106
Montana	21
New York	1,187
North Carolina	185
Ohio	344
Pennsylvania	890
Rhode Island	40
South Carolina	69
West Virginia	93

[1] Exclusive of New York City.

WEEKLY REPORTS FROM CITIES

City reports for week ended November 12, 1932

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Maine:											
Portland	0	-------	0	0	0	7	0	0	0	5	25
New Hampshire:											
Concord	0	-------	0	0	1	0	0	0	0	0	10
Nashua	0	-------	0	0	0	1	0	0	0	0	0
Vermont:											
Barre	2	-------	0	0	0	0	0	0	0	0	3
Burlington	0	-------	0	0	0	1	0	0	0	0	11
Massachusetts:											
Boston	12	2	0	26	12	39	0	10	1	30	185
Fall River	2	-------	0	0	0	2	0	0	0	4	17
Springfield	0	-------	0	0	0	6	0	1	0	0	27
Worcester	9	-------	0	0	4	15	0	2	0	3	46
Rhode Island:											
Pawtucket	0	-------	0	0	2	0	0	0	0	0	18
Providence	2	-------	0	0	7	6	0	2	1	7	54
Connecticut:											
Bridgeport	0	-------	1	9	4	5	0	1	0	2	22
Hartford	0	-------	0	1	0	1	0	0	0	1	27
New Haven	0	-------	0	0	1	1	0	1	0	4	44
New York:											
Buffalo	4	-------	0	2	14	29	0	6	0	21	133
New York	43	15	11	112	93	77	0	82	7	91	1,219
Rochester	2	-------	0	0	3	18	0	1	0	0	73
Syracuse	0	-------	0	1	8	12	0	1	0	10	51
New Jersey:											
Camden	4	-------	0	0	0	4	0	0	0	1	34
Newark	1	5	0	19	3	15	0	4	0	5	67
Trenton	0	1	1	0	0	4	0	3	0	1	37
Pennsylvania:											
Philadelphia	6	4	6	4	25	63	0	29	3	3	414
Pittsburgh	11	3	2	2	12	36	0	5	1	4	139
Reading	0	-------	0	5	0	1	0	3	0	6	28
Scranton	0	-------	-------	2	-------	4	0	-------	0	0	-------
Ohio:											
Cincinnati	2	3	0	0	9	11	0	8	1	1	119
Cleveland	12	33	1	2	15	77	0	10	0	19	167
Columbus	3	-------	0	64	6	14	0	4	0	3	71
Toledo	6	2	1	1	5	42	0	7	1	5	64
Indiana:											
Fort Wayne	3	-------	0	0	2	1	0	1	1	0	26
Indianapolis	8	-------	0	1	7	14	0	7	1	2	-------
South Bend	0	-------	1	0	1	7	0	2	0	3	11
Terre Haute	0	-------	0	0	2	1	0	0	0	0	21
Illinois:											
Chicago	16	7	2	44	45	167	0	27	2	28	578
Springfield	0	-------	0	0	0	5	0	0	0	0	12
Michigan:											
Detroit	19	4	0	20	16	66	0	22	2	53	215
Flint	1	9	0	0	0	2	0	0	0	0	16
Grand Rapids	0	-------	1	2	3	2	0	0	1	7	28
Wisconsin:											
Kenosha	0	-------	0	2	1	7	0	0	0	3	6
Madison	0	-------	-------	2	-------	0	0	-------	0	1	-------
Milwaukee	1	1	1	3	4	6	0	3	0	12	82
Racine	0	-------	0	0	1	1	0	0	0	1	12
Superior	0	-------	0	1	0	0	0	0	0	0	9
Minnesota:											
Duluth	0	-------	0	1	1	4	0	3	0	0	22
Minneapolis	1	-------	1	6	6	14	0	1	0	12	-------
St. Paul	0	1	1	0	7	16	0	4	0	8	61
owa:											
Des Moines	10	-------	0	0	0	3	0	0	0	0	28
Sioux City	2	-------	-------	0	-------	0	0	-------	0	1	-------
Waterloo	0	-------	-------	0	-------	1	0	-------	0	4	-------
Missouri:											
Kansas City	5	-------	1	12	8	15	0	2	0	1	100
St. Joseph	16	-------	0	1	2	1	0	0	0	0	13
St. Louis	32	-------	0	0	6	22	0	8	0	1	178
North Dakota:											
Fargo	0	-------	0	1	0	0	-0	0	0	0	7
Grand Forks	0	-------	0	7	0	0	0	0	0	0	-------

City reports for week ended November 12, 1932—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
South Dakota:											
Aberdeen	0	-------	0	0	0	0	0	0	0	0	-------
Nebraska:											
Lincoln	1	-------	0	0	0	0	0	0	0	0	-------
Omaha	18	-------	0	0	6	7	1	3	1	0	63
Kansas:											
Topeka	1	-------	0	0	2	2	0	0	0	4	18
Wichita	2	-------	0	0	3	9	0	0	0	1	28
Delaware:											
Wilmington	1	-------	0	0	3	0	0	1	0	3	32
Maryland:											
Baltimore	10	1	0	2	19	20	0	14	1	11	189
Cumberland	0	-------	0	0	0	2	0	1	0	0	11
Frederick	0	-------	0	0	0	3	0	0	0	0	2
District of Col.:											
Washington	6	2	0	0	13	18	0	3	0	1	160
Virginia:											
Lynchburg	1	-------	0	2	0	4	0	0	0	1	9
Norfolk	0	-------	0	0	1	5	0	4	0	0	-------
Richmond	1	-------	1	1	4	6	0	2	0	0	45
Roanoke	4	-------	0	0	0	2	0	1	3	0	11
West Virginia:											
Charleston	1	-------	0	0	0	3	0	0	2	4	15
Huntington	1	-------	0	4	0	5	0	0	0	0	-------
Wheeling	0	-------	0	25	4	5	0	0	[1] 1	2	22
North Carolina:											
Raleigh	0	-------	0	0	1	6	0	0	0	0	12
Wilmington	0	-------	0	0	0	0	0	0	0	0	13
Winston-Salem	6	-------	0	0	1	6	0	2	0	2	14
South Carolina:											
Charleston	3	18	0	0	1	1	0	1	0	0	24
Columbia	1	-------	0	0	5	2	0	1	1	1	60
Georgia:											
Atlanta	27	8	0	0	11	0	0	0	0	4	57
Brunswick	0	-------	0	0	0	0	0	0	0	0	3
Savannah	1	-------	0	0	2	2	0	1	0	0	23
Florida:											
Miami	2	-------	0	1	0	0	0	2	0	0	20
Tampa	2	-------	0	0	4	0	0	0	0	0	25
Kentucky:											
Lexington	0	2	0	0	0	0	0	0	0	0	9
Louisville	5	3	2	0	7	6	0	4	0	1	57
Tennessee:											
Memphis	26	-------	0	0	4	7	0	3	0	1	62
Nashville	1	-------	3	0	1	1	0	1	0	0	48
Alabama:											
Birmingham	6	6	2	0	5	12	0	4	0	0	61
Mobile	1	-------	1	0	1	0	0	0	0	0	22
Montgomery	2	-------	-------	0	-------	3	0	-------	0	0	-------
Arkansas:											
Fort Smith	0	-------	-------	0	-------	0	0	-------	0	0	-------
Little Rock	4	-------	0	0	0	0	0	2	0	0	8
Louisiana:											
New Orleans	12	2	3	0	11	8	0	7	0	0	135
Shreveport	1	-------	0	1	0	1	0	1	0	0	17
Oklahoma:											
Tulsa	3	-------	0	0	0	4	0	0	0	0	1
Texas:											
Dallas	28	-------	0	0	3	19	0	2	0	3	50
Fort Worth	11	-------	0	0	1	20	0	0	0	0	27
Galveston	0	-------	1	0	2	1	0	0	0	0	12
Houston	12	-------	0	0	5	9	0	1	0	0	49
San Antonio	5	-------	11	0	3	0	0	6	0	0	58

[1] Nonresident.

City reports for week ended November 12, 1932—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Montana:											
Billings											
Great Falls	0		0	0	1	1	0	1	0	0	7
Helena	0		0	0	0	1	0	0	0	0	2
Missoula	0		0	0	0	0	0	0	0	0	4
Idaho:											
Boise	0		0	1	0	0	11	0	0	0	6
Colorado:											
Denver	1		0	9	18	14	0	3	0	4	86
Pueblo	0		0	0	0	2	0	0	0	0	8
New Mexico:											
Albuquerque	2	1	0	0	2	1	0	6	3	0	16
Arizona:											
Phoenix	1		0	1	0	0	0	3	0	0	
Utah:											
Salt Lake City	9		1	1	2	4	0	1	0	0	34
Nevada:											
Reno											
Washington:											
Seattle	0			0		5	0		0	1	
Spokane	0			1		3	0		0	0	
Tacoma	0		0	0	3	1	1	0	0	0	21
Oregon:											
Portland	1	1	0	1	3	9	2	3	0	0	66
Salem	0	7		3		0	0		0	0	
California:											
Los Angeles	52	210	4	17	17	35	0	24	0	26	323
Sacramento	0	5	3	0	8	8	0	0	0	3	34
San Francisco	4	8	0	3	8	4	0	8	0	18	170

State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths	
Maine			
Portland	0	0	1
New York.			
New York	3	2	2
New Jersey·			
Camden	1	0	0
Pennsylvania·			
Philadelphia	1	0	2
Pittsburgh	0	0	2
Ohio:			
Cincinnati	1	0	0
Cleveland	1	0	0
Toledo	1	2	0
Indiana:			
Indianapolis	3	0	0
Illinois·			
Chicago	4	2	2
Wisconsin:			
Milwaukee	0	0	1
Minnesota			
Minneapolis	1	0	0
St Paul	0	0	1
Missouri			
St Louis	0	1	0
District of Columbia.			
Washington	0	0	1
Alabama			
Birmingham	0	0	1
Colorado·			
Denver	0	1	0
California·			
Los Angeles	1	0	2
San Francisco	1	0	0

Lethargic encephalitis.—Cases: Bridgeport, 1; New York, 1; Pittsburgh, 1; St. Louis, 1.
Pellagra.—Cases: Savannah, 3; New Orleans, 1; Dallas, 2
Typhus fever.—Cases: New York, 1, Dallas, 1. Deaths: Dallas, 1.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended November 5, 1932.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases for the week ended November 5, 1932, as follows:

Disease	Nova Scotia	New Bruns-wick	Quebec	Onta-rio	Mani-toba	Sas-katch-ewan	Alberta	British Colum-bia	Total
Chicken pox			60	251	61	7	12	19	410
Diphtheria	6	2	30	42	5	10		1	96
Dysentery				1					1
Erysipelas			5	1	1			1	8
Influenza								88	88
Measles		14	15	198	14	2	35	34	312
Mumps				45	2	8	1	12	68
Paratyphoid fever				1					1
Pneumonia (all forms)				5				7	12
Poliomyelitis			6	12					18
Scarlet fever	4	13	50	40	25	4	4	12	152
Tuberculosis	2	1	68	31	30	14		12	158
Typhoid fever		12	15	19	3		1		50
Whooping cough			124	46	20	5	1	9	205

Ontario Province—Communicable diseases—Five weeks ended October 29, 1932.—The Department of Health of the Province of Ontario, Canada, reports certain communicable diseases for the five weeks ended October 29, 1932, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Actinomycosis	1		Poliomyelitis	59	5
Cerebrospinal meningitis	6	3	Puerperal septicemia	1	
Chicken pox	702		Scarlet fever	229	5
Diphtheria	104	5	Septic sore throat		1
Dysentery		1	Smallpox	1	
Erysipelas	8		Syphilis	141	2
German measles	4		Tetanus	1	
Gonorrhea	272		Trachoma	1	
Influenza	3	6	Trench mouth		
Jaundice (infectious)			Tuberculosis	201	37
Measles	839		Tularaemia	1	
Mumps	226		Typhoid fever	91	6
Paratyphoid fever	18		Undulant fever	12	
Pneumonia		121	Whooping cough	320	8

CUBA

Habana—Communicable diseases—Four weeks ended November 5, 1932.—During the four weeks ended November 5, 1932, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria	7	5	Tuberculosis	10	4
Malaria	30	3	Typhoid fever	9	4
Scarlet fever	2				

JAMAICA

Communicable diseases—Four weeks ended November 5, 1932.—During the four weeks ended November 5, 1932, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island of Jamaica outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Chicken pox	3	8	Puerperal fever		2
Diphtheria	3	1	Tuberculosis	24	75
Dysentery		4	Typhoid fever	5	97
Leprosy		1			

PORTUGAL

Vital statistics—1931.—The following table shows the numbers of births, deaths, stillbirths, and marriages reported in Portugal during the year 1931, as compared with 1930:

	1931	1930
Births	189, 003	186, 836
Deaths	107, 276	107, 691
Stillbirths	8, 323	8, 116
Marriages	41, 489	44, 337

The population of Portugal, according to the census of Dec. 1, 1930, was 6,190,999.

Deaths from certain diseases reported during the year 1931 are shown in the following table:

Disease	Number of deaths	Disease	Number of deaths
Alcoholism, acute or chronic	213	Pneumonia	8, 557
Bronchitis	2, 312	Puerperal septicemia and infections	393
Cancer and other malignant tumors	2, 795	Scarlet fever	43
Diabetes	311	Smallpox	580
Diarrhea and enteritis:		Syphilis	994
Under 2 years of age	10, 994	Tuberculosis:	
Over 2 years of age	3, 328	Pulmonary	9, 717
Diphtheria	946	Other forms	1, 947
Heart diseases	9, 104	Other diseases of the lungs	1, 287
Hemorrhage of the brain and embolism	7, 672	Typhoid and paratyphoid fever	930
Influenza	2, 629	Typhus fever	13
Malaria	149	Whooping cough	1, 007
Measles	1, 194		

VIRGIN ISLANDS

Notifiable diseases—August–October, 1932.—During the months of August, September, and October, 1932, cases of certain notifiable diseases were reported in the Virgin Islands as follows:

Disease	Cases			Disease	Cases		
	August	September	October		August	September	October
Filariasis	1		13	Tetanus			1
Gonorrhea	6	8	3	Tuberculosis	1		1
Leprosy	1			Uncinariasis	1		2
Malaria	38	12	5	Whooping cough	1	3	
Syphilis	7	7	23				

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of the quarantinable diseases appeared in the Public Health Reports for November 25, 1932, pp 2231–2244. A similar cumulative table will appear in the Public Health Reports to be issued December 30, 1932, and thereafter, at least for the time being, in the issue published on the last Friday of each month.)

Cholera

For the week ended November 5, 1932, 24 cases of cholera with 10 deaths were reported at Calcutta, India.

Plague

Angola.—On November 20, 1932, plague was reported at Naulila, District of Huila, Angola.

Argentina.—During the week ended November 5, 1932, seven cases of plague with one death, were reported in Salta Province, Argentina.

Peru.—Plague was reported in Peru, November 1 to 11, 1932, as follows: Ancachs Department, 2 suspected cases; Libertad Department, 1 case; Lima Department, 5 cases, 2 of which are suspected cases; Piura Department, several suspected cases.

Syria—Beirut.—Under date of November 23, 1932, 37 cases of bubonic plague were reported at Beirut, Syria.

Yellow Fever

French West Africa—Guinea.—Two cases of yellow fever were reported in Guinea, French West Africa, during the week ended November 12, 1932.

French Sudan—Kayes.—Three fatal cases of yellow fever were reported at Kayes, French Sudan, during the week ended November 5, 1932.

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UNITED STATES TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

ISSUED WEEKLY

BY THE UNITED STATES
PUBLIC HEALTH SERVICE

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of public health.

The PUBLIC HEALTH REPORTS are intended primarily for distribution to health officers, members of boards, or departments of health, and those directly or indirectly engaged in or connected with public health or sanitary work. Articles of general or special interest are issued as reprints from the PUBLIC HEALTH REPORTS or as supplements, and in these forms are available for general distribution to those desiring them.

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The Public Health Service is unable to supply the demand for bound copies of the PUBLIC HEALTH REPORTS. Librarians and others receiving the PUBLIC HEALTH REPORTS regularly should preserve them for binding, as it is not practicable to furnish bound copies on individual requests.

CONTENTS

PUBLIC HEALTH REPORTS

VOL. 47 DECEMBER 9, 1932 NO. 50

STANDARDIZATION OF MORBIDITY REPORTING AND DEVELOPMENT OF THE MORBIDITY REPORTING AREA[1]

By R. C. WILLIAMS, *Assistant Surgeon General, United States Public Health Service*

The prompt, complete, and accurate reporting of the notifiable diseases is one of the fundamentals upon which public health work is based. Without the knowledge derived from such reporting, the health officer is not informed as to what problems he has to deal with or where such problems require concentrated effort. There can not be too frequent repetition of the importance of prompt and complete reporting of the notifiable diseases.

A comparison of the morbidity reports made to the Public Health Service over a series of years shows that progress is being made; but there is still much room for improvement. The Pennsylvania State Department of Health has recently made a study of case fatality rates in that State. The reports of cases were checked with the mortality registration cards and fatality rates were computed, using only those deaths which had been reported as cases. This eliminates the error due to the inclusion of many deaths for which there were no case reports.

There has been received from the State Department of Health of Pennsylvania by the Public Health Service a series of such computations which include estimated case fatality rates, to which some factor of correction has been applied, and which are designated "Probable Correct Ratios." These estimated probable correct ratios, together with the rates computed by the Public Health Service, are presented in the following table:

[1] Presented at the Thirtieth Annual Conference of State and Territorial Health Officers with the United States Public Health Service, Washington, D. C., June 6, 1932.

Number of cases for each death

	Probable correct ratios, estimated by Pennsylvania State Department of Health	Ratios computed by the Public Health Service
Diphtheria	15	11
Measles	400	106
Scarlet fever	100	78
Typhoid fever	12	5
Whooping cough	125	26

If these probable correct ratios can be accepted as the true ratios of cases to deaths, and if they are applicable to the United States as a whole, then the average number of cases for each death as reported to the Public Health Service by State health officers is too low for each of the diseases included in the table. A comparison of the ratios computed by the Public Health Service with those suggested by the State of Pennsylvania shows that the Public Health Service case fatality ratios are the following percentages of the ratios estimated as probably correct by the Pennsylvania State Department of Health:

Diphtheria	per cent	73. 3
Measles	do	26. 4
Scarlet fever	do	78. 0
Typhoid fever	do	41. 7
Whooping cough	do	20. 8

The case fatality ratios of the Public Health Service are based on the averages of reports for all States in the registration area for deaths over a period of three years. The figures include many rural areas in which very little has been done to secure reports. A much better showing is made by many States and cities. In fact, as the ratios are based on averages, about one-half of the States make a better showing.

In June, 1917, the first regular weekly telegraphic reports of the prevalence of communicable diseases were received by the Public Health Service from State health officers. For several weeks these reports were received from only one State—California; but by December, 1917, telegraphic reports were published weekly from eight States. Two years later, in December, 1919, 26 States were making telegraphic reports. At the present time these reports are received from all of the States except Nevada, although two or three States are able to report for only a few diseases. However, improvement in this respect is being made. The State of Virginia is now making plans to secure weekly reports of several diseases which have heretofore been reported to the State health department monthly. This will add one more State to the number from which weekly telegraphic reports for nine diseases are being received by the United States Public Health Service.

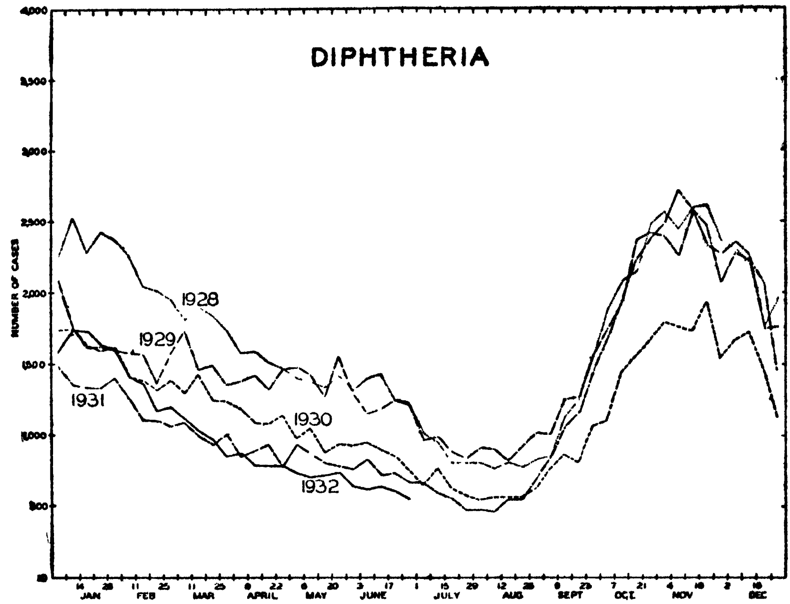
Before September, 1927, the telegraphic reports included most of the diseases notifiable in each State, but the cost of the telegrams made serious inroads on the limited appropriations of the Public Health Service available for the purpose, and the number of diseases for which telegraphic reports were requested was limited to eight; viz, diphtheria, influenza, measles, meningococcus meningitis, poliomyelitis, scarlet fever, smallpox, and typhoid fever. Typhus fever has since been added, making nine diseases now included in the reports from most of the States.

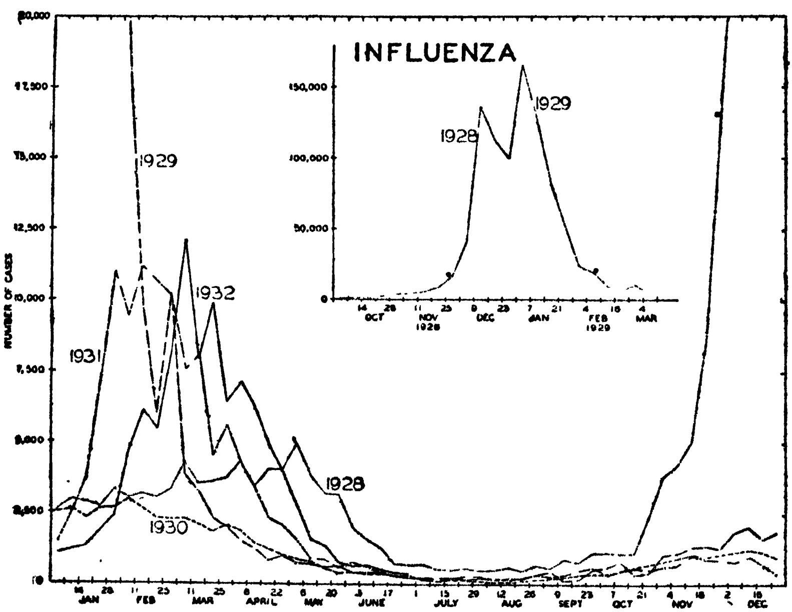
Since May, 1925, a mimeographed summary of the telegraphic reports from all the States has been mailed each week to the State health officers. In spite of the incompleteness of the reports, it is believed that this bulletin has demonstrated its usefulness as an index of current conditions with reference to important communicable diseases. At least it has saved many State health officers the trouble of writing to the Public Health Service for special reports as to the prevalence of diseases when epidemics seemed to threaten.

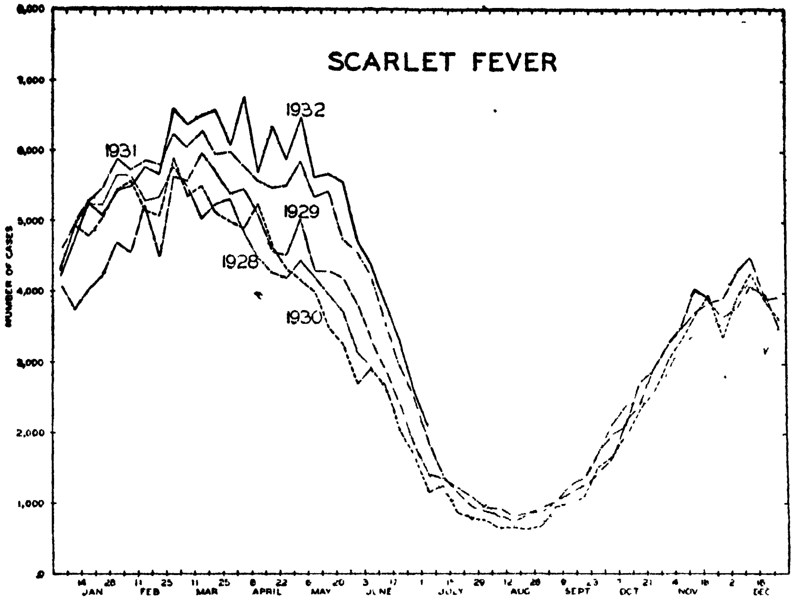
These weekly reports as published in the Public Health Reports for several years have been complete for the States which report for each disease; but in the mimeographed bulletin there are frequent blanks, as telegrams from some of the States are sometimes not received before the bulletin is made up. When the report from any State is not received by Thursday morning, a telegram requesting it is sent to the State health officer. A prompt reply to this telegram enables the Public Health Service to publish the data in the issue of the Public Health Reports for the following week.

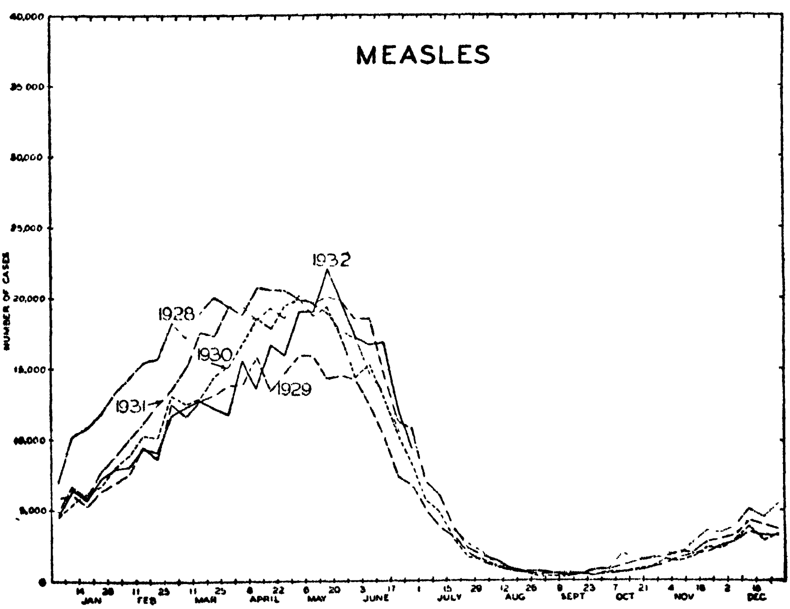
The weekly data are transferred to charts which are kept current by the Public Health Service, and they are very convenient for use in making comparisons between current reports and similar reports for preceding years. They also show clearly the seasonal fluctuations in the prevalence of the diseases included. These charts are reproduced here as of possible interest.

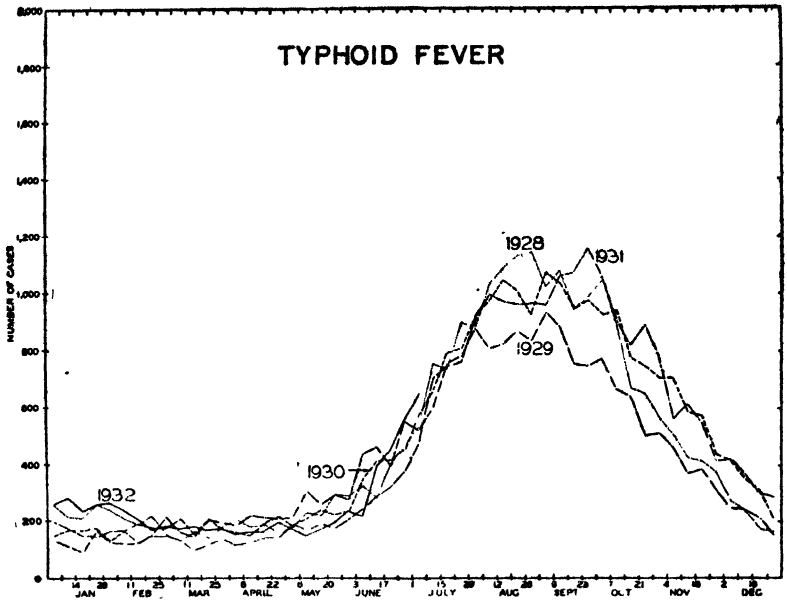
The suggestion has been made that it would be of advantage for the various States to use uniform or standard tables in the presentation of their reports relating to the notifiable diseases. In connection with the development of the proposed morbidity reporting area, it has seemed proper that the Public Health Service should devise such tables and present them to the various States and finally to this conference for consideration. Therefore, since the last conference tentative standard forms for use by States in tabulating morbidity statistics have been prepared and submitted for criticism to a number of State health officers. These tables are not intended for use in making reports to the Public Health Service, but as guides or models to aid in securing comparability in the published morbidity statistics of State health departments.

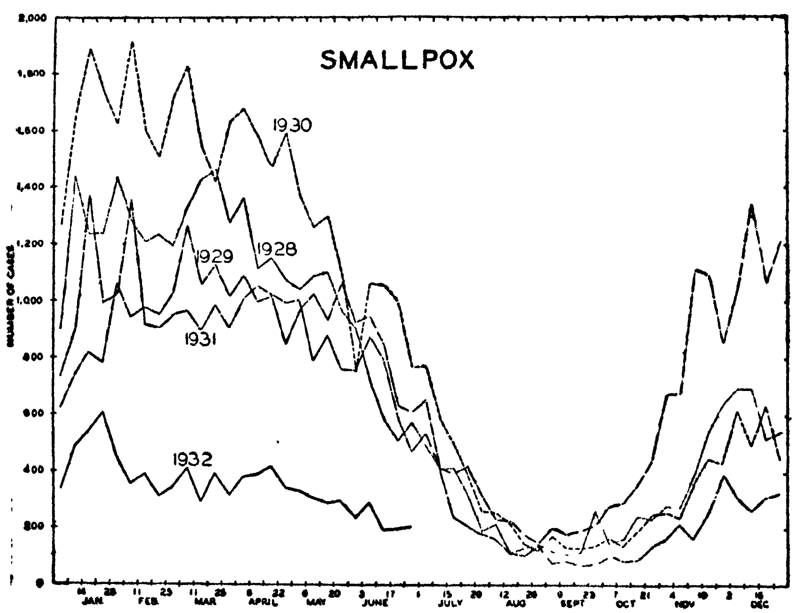

DIPHTHERIA
NUMBER OF CASES
1928
1929
1930
1931
1932
JAN
FEB
MAR
APRIL
MAY
JUNE
JULY
AUG
SEPT
OCT
NOV
DEC

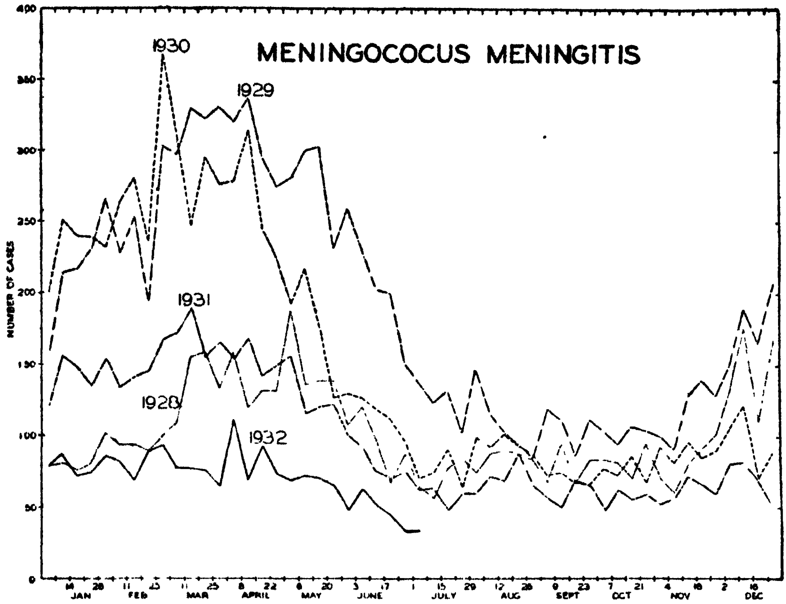

INFLUENZA
NUMBER OF CASES
1928
1929
1930
1931
1932
JAN
FEB
MAR
APRIL
MAY
JUNE
JULY
AUG
SEPT
OCT
NOV
DEC
150,000
100,000
50,000

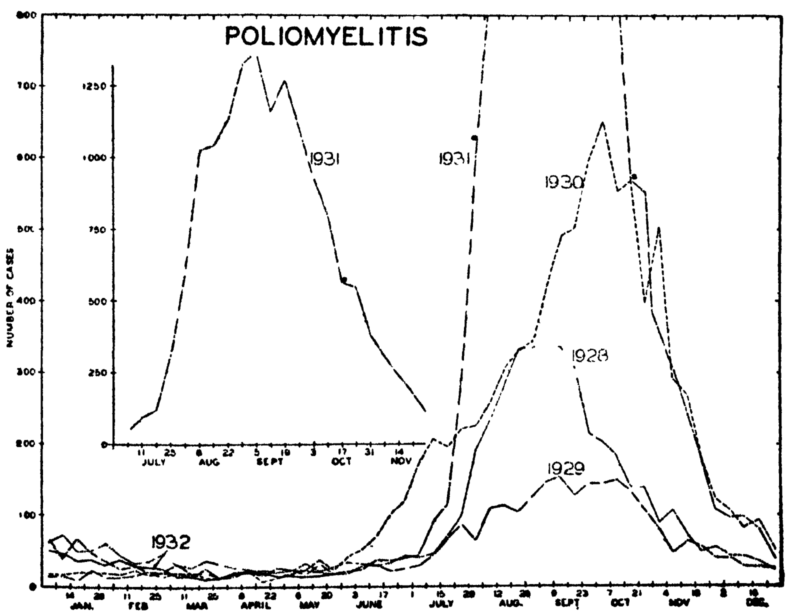

SCARLET FEVER
1932
1931
1929
1928
1930
NUMBER OF CASES
JAN
FEB
MAR
APRIL
MAY
JUNE
JULY
AUG
SEPT
OCT
NOV
DEC


MEASLES
1932
1928
1930
1931
1929
NUMBER OF CASES
40,000
20,000
15,000
JAN
FEB
MAR
APRIL
MAY
JUNE
JULY
AUG
SEPT
OCT
NOV
DEC


TYPHOID FEVER
1928
1931
1929
1930
1932
NUMBER OF CASES
JAN FEB MAR APRIL MAY JUNE JULY AUG SEPT OCT NOV DEC


SMALLPOX
1930
1929
1928
1931
1932
NUMBER OF CASES
JAN FEB MAR APRIL MAY JUNE JULY AUG SEPT OCT NOV DEC


MENINGOCOCUS MENINGITIS
1930
1929
1931
1928
1932
NUMBER OF CASES
JAN
FEB
MAR
APRIL
MAY
JUNE
JULY
AUG
SEPT
OCT
NOV
DEC


POLIOMYELITIS
1931
1931
1930
1928
1929
1932
NUMBER OF CASES
JULY
AUG
SEPT
OCT
NOV
JAN.
FEB
MAR
APRIL
MAY
JUNE
JULY
AUG.
SEPT
OCT
NOV
DEC.

All of the State health officers who examined the tentative standard tables and replied agreed substantially with the State health department of Tennessee that "uniform tables of this nature should greatly increase the usefulness of the morbidity statistics of the several States." Some of the State health officers referred to depleted appropriations, small office forces, and the necessity for rigid economy. It is evident that under present conditions many States find it impossible to make changes in published reports which will involve additional expense. There is also a natural reluctance to change methods and tabulations which have become routine and which are understood by the office personnel and which are based on reports which local health officers and physicians have been accustomed to submit. In this connection it is gratifying to note that the Alabama State Health Department in its recently published report followed very closely the tentative uniform tables suggested by the Public Health Service.

It is evident that the lists of reportable diseases in the several States could be made much more nearly uniform than they are now, although conditions differ so much that identical lists may not be desirable.

Thirty-one diseases are included in the longer list in the tables as drafted by the Public Health Service. Some States do not receive detailed reports of a number of these diseases; other States receive reports of a number of diseases which are not included in the tables. The State of Tennessee publishes tables listing 49 diseases. For eight of these diseases, however, no case was reported in 1931. It has been suggested that the list of diseases be made shorter, and also that the following diseases be added: Anthrax, beriberi, cancer, favus, glanders, erysipelas, lethargic encephalitis, rabies, and tetanus. Some important diseases, including Asiatic cholera, leprosy, plague, and yellow fever do not appear in the tables as drafted, but obviously should be inserted when cases occur.

The Maryland State Health Department suggests that the diseases be arranged in the order of the International List of Causes of Death instead of alphabetically and that the list numbers be used.

Influenza cases are not notifiable in the two States having the largest population. Diarrhea and enteritis (under 2 years) and puerperal septicemia are notifiable in only a few States, but the State health department of Georgia advises that puerperal septicemia and ophthalmia neonatorum will probably be added to the list of notifiable diseases in that State. Tuberculosis is notifiable in all of the States, but some States do not separate respiratory tuberculosis from other forms.

Cases of notifiable diseases reported in the State of ____________________ during 193__, by ages

Disease	Total	Under 1 year	1 year	2 years	3 years	4 years	5 years	6 years	7 years	8 years	9 years	10 to 14 years	15 to 19 years	20 to 24 years	25 to 29 years	30 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 to 74 years	75 years and over	Age unknown
Chancroid																						
Chicken pox																						
Diarrhea and enteritis (under 2 years)																						
Diphtheria																						
Dysentery:																						
Amebic																						
Bacillary																						
German measles																						
Gonorrhea																						
Hookworm disease																						
Influenza																						
Malaria																						
Measles																						
Meningococcus meningitis																						
Mumps																						
Ophthalmia neonatorum																						
Paratyphoid fever																						
Pellagra																						
Pneumonia (all forms)																						
Poliomyelitis																						
Puerperal septicemia																						
Rocky Mountain spotted fever (including eastern type)																						
Scarlet fever																						
Septic sore throat																						
Smallpox																						
Syphilis																						
Trachoma																						
Tuberculosis:																						
Respiratory																						
Other forms																						
Tularaemia																						
Typhoid fever																						
Typhus fever																						
Undulant fever																						
Whooping cough																						

(This table can be subdivided to show cases by color or race.)

Cases of notifiable diseases reported in the State of -------------------- during the year 193--, by months

Disease	Total	January	February	March	April	May	June	July	August	September	October	November	December
Chancroid													
Chicken pox													
Diarrhea and enteritis (under 2 years)													
Diphtheria													
Dysentery:													
Amebic													
Bacillary													
German measles													
Gonorrhea													
Hookworm disease													
Influenza													
Malaria													
Measles													
Meningococcus meningitis													
Mumps													
Ophthalmia neonatorum													
Paratyphoid fever													
Pellagra													
Pneumonia (all forms)													
Poliomyelitis													
Puerperal septicemia													
Rocky Mountain spotted fever (including eastern type)													
Scarlet fever													
Septic sore throat													
Smallpox													
Syphilis													
Trachoma													
Tuberculosis:													
Respiratory													
Other forms													
Tularaemia													
Typhoid fever													
Typhus fever													
Undulant fever													
Whooping cough													

Cases of notifiable diseases reported in the State of -------------------- during 193--, by color and sex, with case rates

Disease	Total						White						Colored					
	Both sexes		Male		Female		Both sexes		Male		Female		Both sexes		Male		Female	
	Number of cases	Cases per 100,000 population	Number of cases	Cases per 100,000 population	Number of cases	Cases per 100,000 population	Number of cases	Cases per 100,000 population	Number of cases	Cases per 100,000 population	Number of cases	Cases per 100,000 population	Number of cases	Cases per 100,000 population	Number of cases	Cases per 100,000 population	Number of cases	Cases per 100,000 population
Chancroid																		
Chicken pox																		
Diarrhea and enteritis (under 2 years)																		
Diphtheria																		
Dysentery:																		
Amebic																		
Bacillary																		
German measles																		
Gonorrhea																		
Hookworm disease																		
Influenza																		
Malaria																		
Measles																		
Meningococcus meningitis																		
Mumps																		
Ophthalmia neonatorum																		
Paratyphoid fever																		
Pellagra																		
Pneumonia (all forms)																		
Poliomyelitis																		
Puerperal septicemia																		
Rocky Mountain spotted fever (including eastern type)																		
Scarlet fever																		
Septic sore throat																		
Smallpox																		
Syphilis																		
Trachoma																		
Tuberculosis:																		
Respiratory																		
Other forms																		
Tularaemia																		
Typhoid fever																		
Typhus fever																		
Undulant fever																		
Whooping cough																		

Cases of notifiable diseases reported in the State of -------------------- during 193--, by counties and cities, with case rates

Counties and cities	Diphtheria		Influenza		Measles		Meningococcus meningitis		Paratyphoid fever		Poliomyelitis		Scarlet fever		Smallpox		Respiratory tuberculosis		Tuberculosis, other forms		Typhoid fever		Whooping cough	
	Number of cases	Cases per 100,000 population	Number of cases	Cases per 100,000 population	Number of cases	Cases per 100,000 population	Number of cases	Cases per 100,000 population	Number of cases	Cases per 100,000 population	Number of cases	Cases per 100,000 population	Number of cases	Cases per 100,000 population	Number of cases	Cases per 100,000 population	Number of cases	Cases per 100,000 population	Number of cases	Cases per 100,000 population	Number of cases	Cases per 100,000 population	Number of cases	Cases per 100,000 population
Aaron County	32	41	1,173	1,485	467	591	4	5	3	4	1	1	69	87	1	1	137	173	8	10	29	37	53	67
Bancroft County (exclusive of Bancroft City)	79	63	1,939	1,551	36	29	1	1	1	1	1	1	229	183	0	0	164	131	16	13	37	30	237	190
Bancroft City	547	68	6,687	831	145	18	19	2	23	3	9	1	1,532	190	0	0	1,275	158	175	22	77	9	3,558	442
Claremont County	97	147	1,037	1,571	45	68	5	8	1	2	7	11	342	518	6	9	119	180	8	12	39	59	93	141
Total for State	755	70	10,836	1,008	693	64	29	3	28	3	18	2	2,172	202	7	1	1,695	158	207	19	182	17	3,941	367

This table can be extended to include other diseases.

From the State Health Department of California comes the suggestion that if pneumonia is made reportable, it be divided and separate reports made for broncho-pneumonia, lobar pneumonia, and other forms. However, few, if any, States now collect the data in this form. All of the State health officers who submitted criticisms apparently agreed that a table showing the incidence of notifiable diseases by months is necessary.

Three of the tentative tables as prepared by the Public Health Service called for classifications by age and color. It has been suggested that these three tables be combined in one. The classification by color is deemed essential by health officers in States where a large part of the population is colored. Massachusetts, New York, and Michigan do not consider it necessary to classify by color. However, the colored population of Michigan increased 182 per cent between 1920 and 1930. Negroes now constitute more than 3 per cent of the total population of that State, and they may become numerous enough noticeably to influence case and death rates. California, it appears, is not prepared to give color or sex, but new cards will provide for classification by race to show the incidence of some diseases among Mexicans and Japanese. It is not necessary that all States classify by color and race, but health officers in States having a considerable number of inhabitants of a class which has higher morbidity rates than the average for certain diseases should bear in mind that if only the total figures are published these figures will usually be compared with figures for the white populations in States which classify by color or race.

Two of the tables call for case rates, one table with a classification by sex and the other by political subdivisions of the State. It is evident from the criticisms that the work of computing these rates is a serious problem in many State health departments. Some States compute rates for a few diseases only and some compute rates for the aggregate of rural and urban areas. A possible solution of this problem might be found by adding to the tables a line or a column giving the population data necessary for computing rates. This will enable anyone who has a computing machine, a slide rule, or a table of logarithms to secure easily any rate desired. The Tennessee State Health Department suggests that if rates are published for each county and city a footnote should be inserted cautioning against making comparisons on the basis of rates.

The Massachusetts State Health Department suggests adding to tables calling for classification by sex a heading "sex unknown."

Before requesting this conference to approve uniform or standard tables, it is desired to study further the problem and receive the comment of a number of other State health departments.

It will be recalled that last year this conference approved a suggested plan for the proposed morbidity reporting area. The requirements for admission to the morbidity reporting area were as follows:

(1) The State must be included in the registration area for births and deaths.

(2) There must be adequate legislation to enforce reporting.

(3) There must be machinery for securing reports and keeping records.

(4) There must be a clerical force to do the work required.

(5) There must be willingness to cooperate in efforts to secure more nearly accurate and complete reports of the notifiable diseases.

(6) The State must secure reports of at least as many cases per death as the average number reported by States in the registration area for deaths for the preceding three years for five diseases—diphtheria, measles, scarlet fever, typhoid fever, and whooping cough. The average number of cases per death which was used as the standard for comparison was computed on the aggregate numbers of cases and deaths reported by all States in the registration area for deaths and calculated separately for each disease for each year. At the conference last year 24 States were rated as standard, that is, above the average number of cases reported for each death, and 21 States were rated as below standard, that is, below the average number of cases reported for each death. For four States data were incomplete; therefore, they could not be rated. The ratings of the States last year as just mentioned were based upon the numbers of cases of the diseases reported for the years 1927, 1928, and 1929. This year similar computations made on the numbers of cases reported for 1928, 1929, and 1930 give the following results:

States rated standard

(Above the average number of cases reported for each death)

1. California.
2. Connecticut.
3. District of Columbia.
4. Illinois.
5. Kansas.
6. Maine.
7. Maryland.
8. Massachusetts.
9. Michigan.
10. Minnesota.
11. Mississippi.
12. Montana.
13. New Jersey.
14. New York.
15. North Carolina.
16. Ohio.
17. Oregon.
18. Pennsylvania.
19. Rhode Island.
20. South Carolina.
21. Utah.
22. Vermont.
23. Virginia.
24. Washington.
25. Wisconsin.
26. Wyoming.

States rated below standard

(Below the average number of cases reported for each death)

1. Alabama.
2. Arizona.
3. Arkansas.
4. Colorado.
5. Delaware.
6. Florida.
7. Georgia.
8. Idaho.
9. Indiana.
10. Iowa.
11. Kentucky.
12. Louisiana.
13. Missouri.
14. Nebraska.
15. New Hampshire.
16. North Dakota.
17. Oklahoma.
18. Tennessee.
19. West Virginia.

For the following named States comparable data for the three years were not available, as these States were not in the registration area for deaths:

1. Nevada.
2. New Mexico.
3. South Dakota.
4. Texas.

It is gratifying to note from these lists that all of the States that were rated as standard last year received that rating this year, and that two additional States have been added to that group, viz, Maine and Montana. It is felt that each year there will be additions of States to the list of those which attain the standard rating. The development of improved reporting of the notifiable diseases is a slow process, but the importance of the ultimate end to be attained justifies our continued and earnest efforts.

BACTERIUM GRANULOSIS CONJUNCTIVITIS COMPARED WITH THAT PRODUCED FROM HUMAN TRACHOMA

TRANSMISSIBILITY OF THE GRANULAR CONDITION INDUCED IN *MACACUS RHESUS* MONKEYS BY INOCULATION WITH CULTURES OF *BACTERIUM GRANULOSIS* CONTRASTED WITH THAT INDUCED IN THE SAME SPECIES BY DIRECT TRANSFER FROM HUMAN TRACHOMA

By IDA A. BENGTSON, *Senior Bacteriologist, National Institute of Health*

In an effort to determine the relationship of the form of granular conjunctivitis induced in *Macacus rhesus* monkeys by the inoculation of *Bacterium granulosis* into the conjunctiva of this species with that induced by direct transmission from cases of human trachoma in Missouri in the same species, experiments were undertaken with the following series of monkeys:

Series I: Monkeys in which the granular condition originally induced by the inoculation of cultures of *Bact. granulosis* was thereafter transmitted by transfer of secretion by means of sterile cotton swabs.

Series II: Monkeys in which a granular condition originally induced by repeated swabbings from cases of trachoma in Missouri was

thereafter transmitted by transfer of secretion by means of sterile cotton swabs.

Series III: Four monkeys in which an attempt was made to produce immunity by subcutaneous and intravenous inoculations of killed cultures of *Bact. granulosis*, after which passage of the granular condition from monkeys of Series I was attempted. Four control monkeys, unvaccinated, are included in this series.

Series IV: Four monkeys in which an attempt was made to produce immunity by subcutaneous and intravenous inoculations of killed cultures of *Bact. granulosis*, after which passage of the granular condition from monkeys of Series II was attempted. Four control monkeys are included in this series also.

Series I was started from a single monkey, as recounted in a previous publication (1). A number of attempts with negative results had been made to obtain the granular condition described by Noguchi (2) by means of inoculation with cultures. The strains used had been under cultivation for some time and had been received from the Rockefeller Institute for Medical Research and from Doctors Finnoff and Thygeson. The successful implantation of the culture was accomplished by Dr. Phillips Thygeson, who used a number of strains isolated more recently than those used by the writer.

The condition was continued by passage through six other monkeys, using the method of swabbing a single time. The lesions consisted of rather numerous follicles on the upper and lower lids of both the inoculated and uninoculated eyes, with congestion and hypertrophy of the conjunctiva. In some cases follicles were present on the conjunctiva over the tarsus, though these were smaller and more discrete than those in the fornix. The incubation period was short, congestion of the conjunctiva usually becoming apparent in 7 or 8 days, with follicles appearing a few days later. The condition was definitely active and progressive. The symbol + + + + was used to indicate the degree of activity.

Series II included two monkeys which had been repeatedly swabbed from trachoma cases in the Trachoma Hospital at Rolla, Missouri. A number of earlier attempts (1) had failed to produce lesions sufficiently pronounced to make it seem worth while attempting to continue the condition by passage. The first of the monkeys referred to was swabbed repeatedly during the period January 20–27, 1932. The conjunctiva of the treated eye showed some congestion and a few rather definite follicles in 14 days. The condition progressed slowly until April 22, when definite, rather large follicles were present in the upper and lower lids of the uninoculated eye in sufficient number to make it seem worth while to attempt passage to another monkey (No. 486). This monkey was treated six times with secretion from the first monkey (No. 519). A few follicles developed early, but the

condition progressed slowly, and it was not until about June 1 that the condition appeared very active, at which time there were numerous large succulent follicles on both the upper and lower lids of both eyes. The degree of activity of the condition was recorded as + + + ±.

Another monkey (No. 548) was swabbed repeatedly with secretions from a patient at Rolla, Mo., during the period April 4–11. Definite follicles were present on the conjunctiva of the upper lid of the treated eye in about a month. By June 22 the condition had progressed to the extent that the lesions were recorded as + + +. The uninoculated eye remained unaffected.

The monkeys in Series III and IV were inoculated with killed cultures of 6 strains of *Bact. granulosis*, 4 by the subcutaneous route and 4 by the intravenous route. The results were negative in all cases when the sera of the monkeys were tested for agglutinins against suspensions of the organism before the inoculations were begun. Eight weekly inoculations were given, beginning with 0.5 c c of a suspen sion containing approximately one billion organisms per c c and ending with 2 c c of a heavy suspension approximately five times as turbid. The monkeys apparently suffered no ill effects from the inoculations and there was only an occasional slight elevation of temperature.

Thygeson (3) reports that subconjunctival inoculations of a killed culture of *Bact. granulosis* failed to prevent the development of a granular condition in monkeys when tissue from infected monkeys was inoculated subconjunctivally. In the present work it was thought possible that by the introduction of the vaccine by the intravenous or subcutaneous routes more protection might be afforded. At the same time, by a comparison of the results in the monkeys in which the infection was orginally induced by inoculation of cultures of *Bact. granulosis* and those in which the condition was first induced by direct transfer, it might be possible to obtain some information as to the relationship of the two conditions.

Antibody response as the result of the inoculation of the killed cultures is indicated by the results of the agglutination test, which was as follows:

	Monkey No.	Serum dilutions								
		1:12.5	1:25	1:50	1:100	1:200	1:400	1:800	1:1600	Control
Intravenous inoculation	518	3	4	3	2	1	0	0	0	0
	524	4	4	4	4	2	1	0	•0	0
	489	4	4	4	3	1	0	0	0	0
	529	4	4	4	3	2	1	0	0	0
Subcutaneous inoculation	527	4	4	4	4	3	1	0	0	0
	528	4	4	4	4	3	1	0	0	0
	546	4	4	2	2	1	0	0	0	0
	264	4	4	4	4	3	3	1	0	0
Rabbit immune serum	------	4	4	4	4	3	3	1	0	0

NOTE.—4 signifies complete agglutination, 3 somewhat less precipitation than 4, 2 about half of the organisms precipitated, 1 slight agglutination.

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On June 22 passage of the granular condition induced originally by inoculation with cultures of *Bact. granulosis* was attempted in the monkeys of Series III, using four of the vaccinated monkeys (two vaccinated by the intravenous route and two by the subcutaneous route) and four control monkeys. Passage was made from three of the monkeys in Series I, the method used being that of rubbing a sterile swab over the conjunctival surface of the infected monkey and then over the conjunctival surface of the monkey under test. In this series only one swabbing was practiced.

Passage of the granular condition induced by direct transfer from trachoma cases was made from the two monkeys in Series II (519 and 548) and from 486 which had developed lesions which seemed sufficiently pronounced that positive results might be expected in attempted transmission. In this series, swabbing was practiced as above, except that three swabbings instead of one were used.

On August 25 the results of the tests were recorded as follows:

SERIES III.—*Inoculated from "culture" monkeys*

	Right eye	Left eye
Vaccinated monkeys:		
518	++++	++++
524	(Died)	
528	+++	+++
527	++++	++++
Control monkeys (unvaccinated):		
583	++++	++++
590	−	−
557	+++	+++
587	−	−

SERIES IV.—*Inoculated from "direct transfer" monkeys (519, 548, 486)*

	Right eye	Left eye
Vaccinated monkeys:		
489	++++	+++
529	(Died)	
204	−	−
516	−	−
Control monkeys (unvaccinated):		
439	−	−
549	−	−
598	−	−
619	−	−

In Series III, 5 of the monkeys developed lesions in both eyes, 1 died, and 2 were negative. The 2 monkeys in which negative results were obtained were again swabbed (August 25). No. 587 developed lesions recorded as + + + ±, No. 590 remained negative.

In the direct passage series (IV) 1 monkey developed definite lesions, 1 died, and 6 were negative. Passage to four of those negative has been again attempted, but the results are still negative or only slightly suggestive.

COMMENT

Inasmuch as protection was not afforded against the granular condition in all of the animals in either series, namely, those in which the infection was induced by direct transfer and those in which infection was induced by inoculation with cultures, definite conclusions may not be drawn in regard to the immunological relationship of the two conditions. The results obtained in the monkeys which did not become infected may be explained on the basis of insusceptibility rather than on the basis of immunity. In both series more animals were infected in the vaccinated than in the unvaccinated group. It is very apparent, therefore, that vaccination by the subcutaneous route or by the intravenous route does not protect against either conjunctival infection, even after as many as eight successive inoculations.

Regarding transmissibility, it appears that the condition induced by direct transfer, as indicated by the results obtained thus far, is less readily transmissible than that induced by inoculation with cultures of *Bact. granulosis*, although more frequent swabbings were made (three swabbings in Series II as compared with one in Series I). Whether this difference is of significance and whether it would be constantly true can not be said without further tests. As to the appearance of the lesions, there were no striking differences, except that the lesions induced by direct transfer of human trachomatous material and by passage thereafter have appeared somewhat less active than those induced by culture inoculation.

The results obtained emphasize the fact that the appearance of the lesions in monkeys can not be used as an accurate criterion to determine whether the condition is one which is the counterpart of that occurring in human trachoma. It might be expected that the direct transfer monkeys would have developed lesions more nearly approaching those of human trachoma, but this was not the case. There was no evidence of pannus or corneal involvement, and the condition appeared not only somewhat less active but at the time of this report it appears that it will be less chronic. The explanation of the different appearance of the lesions in man and animals very probably lies in the greater resistance to the disease on the part of the monkey as compared with that of human beings. Other instances are known in which a disease manifests itself differently in man than it does in animals.

In conclusion it may be said that it is believed that further work along the line suggested may furnish information regarding the problem of the etiological relationship of *Bact. granulosis* to trachoma, for the solution of which some workers have considered human experimentation necessary.

REFERENCES

(1) Bengtson, Ida A. (1932): Pub. Health Rep., 47, 1914–35.
(2) Noguchi, H. (1928): Journ. Exper. Med., 48, Supp. No. 2.
(3) Thygeson, P. (1932): Am. Jour. Ophth., 15, 293–306.

COURT DECISION RELATING TO PUBLIC HEALTH

City held not liable for driving cattle from watershed.—(Colorado Supreme Court; Phillips *v.* City of Golden, 14 P. (2d) 1013; decided Sept. 19, 1932.) The city of Golden owned several thousand acres of land as a watershed. Some dairy cattle which came upon the city's land were driven off, and the owner of the cattle brought an action for alleged damage to them. The judgment of the lower court in favor of the city was affirmed by the supreme court, which, in its opinion, stated in part as follows:

* * * It was not only the right but also the duty of the city to maintain the purity of its water supply for the domestic use of its inhabitants. This proposition is too self-evident to require the citation of authority. We held in Richards *v.* Sanderson, supra, that parties have the right to drive trespassing cattle from their own unfenced lands, exercising that degree of care to prevent injury that would be ordinarily observed by a prudent person, and there is no evidence in the case now before us that the city did otherwise.

DEATHS DURING WEEK ENDED NOVEMBER 19, 1932

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Nov. 19, 1932	Corresponding week, 1931
Data from 85 large cities of the United States:		
Total deaths	7,677	7,678
Deaths per 1,000 population, annual basis	11.0	11.1
Deaths under 1 year of age	619	643
Deaths under 1 year of age per 1,000 estimated live births [1]	51	50
Deaths per 1,000 population, annual basis, first 46 weeks of year	11.0	11.8
Data from industrial insurance companies:		
Policies in force	69,914,948	74,167,145
Number of death claims	13,548	13,440
Death claims per 1,000 policies in force, annual rate	10.1	9.4
Death claims per 1,000 policies, first 46 weeks of year, annual rate	9.5	9.7

[1] 1932, 81 cities; 1931, 77 cities.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended November 26, 1932, and November 28, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended November 26, 1932, and November 28, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Nov. 26, 1932	Week ended Nov. 28, 1931	Week ended Nov. 26, 1932	Week ended Nov. 28, 1931	Week ended Nov. 26, 1932	Week ended Nov. 28, 1931	Week ended Nov. 26, 1932	Week ended Nov. 28, 1931
New England States:								
Maine	4	2	1	1	2	213	0	0
New Hampshire		9			1	10	0	0
Vermont	4	1			1	64	0	0
Massachusetts	43	47	2	1	68	114	2	1
Rhode Island	6	12				155	0	0
Connecticut	8	2	10	1	6	44	1	0
Middle Atlantic States:								
New York	65	119	[1] 9	[1] 15	345	278	4	8
New Jersey	21	27	14	12	89	29	0	2
Pennsylvania	108	98			246	365	4	5
East North Central States:								
Ohio	90	111	6	22	143	74	1	1
Indiana	85	90	48	9	7	19	2	0
Illinois	89	140	52	10	58	29	12	8
Michigan	20	53	3		230	52	3	1
Wisconsin	3	22	26	20	148	16	2	0
West North Central States:								
Minnesota	10	27			74	8	1	2
Iowa	14	21				2	0	2
Missouri	46	72	2	16		22	2	1
North Dakota	5	5			115		0	1
South Dakota	11	4	1			38	0	0
Nebraska	22	29		5		14	0	0
Kansas	25	71	8		2	12	2	0
South Atlantic States:								
Delaware	3	33			2		0	1
Maryland [2]	12	82	15	8	3	6	1	1
District of Columbia [3]	4	19	3			5	0	0
Virginia	69				61		1	
West Virginia	62	69	55	9	97	286	1	1
North Carolina [3]	53	116	15	89	51	15	1	2
South Carolina	17	27	469	401	4	3	0	0
Georgia [3]	49	35		36		10	0	2
Florida [3]	39	10	2	1		1	0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended November 26, 1932, and November 28, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Nov. 26, 1932	Week ended Nov. 28, 1931	Week ended Nov. 26, 1932	Week ended Nov. 28, 1931	Week ended Nov. 26, 1932	Week ended Nov. 28, 1931	Week ended Nov. 26, 1932	Week ended Nov. 28, 1931
East South Central States:								
Kentucky	107	81	89				1	1
Tennessee	84	78	169	29	4	17	4	6
Alabama [3]	42	84	1,940	21	3	6	2	0
Mississippi	24	87					0	0
West South Central States:								
Arkansas	30	23	111	10	1	1	0	0
Louisiana	32	49	600	10	1	5	1	0
Oklahoma [4]	53	111	47	34	6	1	0	0
Texas [3]	171	92	73	5	1	11	0	0
Mountain States:								
Montana		5	27	2	138	329	0	0
Idaho	6		28		4		0	0
Wyoming					1	2	1	0
Colorado	5	4			6	1	0	1
New Mexico	15	14	22			9	9	1
Arizona	7	12	479	2	1		0	2
Utah [2]	3	1	146	11	1		1	2
Pacific States:								
Washington	8	5	1			31	0	2
Oregon	3		112	24	40	1	0	0
California	71	91	1,721	42	41	116	3	5
Total	1,648	2,090	6,306	846	2,001	2,414	62	59

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Nov. 26, 1932	Week ended Nov. 28, 1931	Week ended Nov. 26, 1932	Week ended Nov. 28, 1931	Week ended Nov. 26, 1932	Week ended Nov. 28, 1931	Week ended Nov. 26, 1932	Week ended Nov. 28, 1931
New England States:								
Maine	0	0	13	33	0	0	4	5
New Hampshire	0	0	12	6	0	0	1	0
Vermont	0	1	7	4	0	9	0	0
Massachusetts	0	12	242	221	0	0	2	1
Rhode Island	0	0	25	21	0	0	0	0
Connecticut	0	3	64	44	0	0	1	2
Middle Atlantic States:								
New York	4	16	463	419	0	36	13	15
New Jersey	1	9	156	106	0	0	5	5
Pennsylvania	6	10	542	423	0	0	23	43
East North Central States:								
Ohio	2	1	641	460	2	22	12	14
Indiana	1	0	93	107	2	10	4	8
Illinois	3	8	354	235	1	17	11	20
Michigan	1	5	251	178	0	24	3	5
Wisconsin	0	6	68	56	1	1	14	7
West North Central States:								
Minnesota	0	4	77	44	0	2	2	1
Iowa	0	11	41	40	12	137	0	2
Missouri	0	1	72	66	0	1	4	9
North Dakota	0	2	22	10	14	6	0	0
South Dakota	0	0	8	11	1	9	2	2
Nebraska	1	0	31	30	2	22	0	1
Kansas	0	0	85	57	1	11	4	1
South Atlantic States:								
Delaware	0	0	3	9	0	0	0	0
Maryland [2]	2	2	71	95	0	0	4	17
District of Columbia [3]	0	0	16	18	0	0	1	2
Virginia	3		84		0	5	21	
West Virginia	0	1	82	73	0	0	15	38
North Carolina [3]	1	2	94	123	0	1	14	14
South Carolina	1	1	14	14	1	0	5	16
Georgia [3]	1	0	22	29	0	1	10	19
Florida [3]	0	1	4	6	0	0	0	1

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended November 26, 1932, and November 28, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Nov. 26, 1932	Week ended Nov 28, 1931	Week ended Nov. 26, 1932	Week ended Nov. 28, 1931	Week ended Nov. 26, 1932	Week ended Nov. 28, 1931	Week ended Nov. 26, 1932	Week ended Nov. 28, 1931
East South Central States:								
Kentucky	4	1	128	88	0	7	34	34
Tennessee	3	1	59	72	7	2	20	23
Alabama [3]	1	1	46	71	0	0	8	22
Mississippi	0	0	30	39	1	2	1	0
West South Central States:								
Arkansas	0	1	50	23	0	4	5	6
Louisiana	0	1	16	22	1	8	1	11
Oklahoma [4]	1	0	53	51	8	1	8	33
Texas [3]	0	0	117	39	1	9	8	9
Mountain States:								
Montana	0	1	13	18	0	1	2	0
Idaho	0	0	0	7	2	0	1	0
Wyoming	0	0	9	14	0	0	1	0
Colorado	0	0	27	17	1	0	7	8
New Mexico	0	0	4	15	0	0	1	9
Arizona	0	1	5	4	0	0	0	0
Utah [2]	0	1	12	6	0	0	0	0
Pacific States:								
Washington	5	2	24	48	6	20	8	1
Oregon	1	0	31	19	0	6	2	2
California	1	2	159	122	2	14	9	10
Total	43	108	4,440	3,612	66	388	291	411

[1] New York City only.
[2] Week ended Friday.
[3] Typhus fever, week ended Nov. 26, 1932, 22 cases: 1 case in District of Columbia, 1 case in North Carolina, 6 cases in Georgia, 2 cases in Florida, 3 cases in Alabama, and 9 cases in Texas.
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
October, 1932										
California	8	240	1,075	9	115	2	16	400	14	46
Idaho		25	11		2		3	25	24	10
Indiana	27	404	122		41		7	471	3	96
Kansas	5	155	10	1	24		6	376	3	17
Missouri	10	450	13	10	41	1		546	0	106
New Mexico		79	71	6	3	2	1	59	0	54
Oklahoma [1]	4	485	127	159	7	10	3	177	4	127
Oregon	1	9	283	27	88	1	7	80	5	18
South Dakota	1	17	2		5		1	60	2	10
Texas		847	221	856		6	18	309		117
Virginia	2	342		35	169	16	13	382	0	111
Washington		18	106		28		21	109	14	27

[1] Exclusive of Oklahoma City and Tulsa.

October, 1932

Disease and State	Cases
Actinomycosis:	
California	1
Kansas	1
Anthrax	
California	2
Missouri	1
South Dakota	1
Chicken pox:	
California	556
Idaho	87
Indiana	306
Kansas	262
Missouri	116
New Mexico	30
Oklahoma [1]	18
Oregon	82
South Dakota	104
Virginia	90
Washington	303
Conjunctivitis:	
New Mexico	3
Diarrhea and dysentery:	
Virginia	207
Dysentery:	
California (amebic)	8
California (bacillary)	37
Oklahoma [1]	12
Oregon	2
Food poisoning:	
California	92
New Mexico	1
German measles:	
California	30
Indiana	2
Kansas	1
New Mexico	1
Washington	13
Granuloma, coccidioidal:	
California	3
Impetigo contagiosa	
Kansas	12
Oregon	122
Washington	3
Leprosy:	
California	1
Lethargic encephalitis:	
California	3
Indiana	1
Oregon	1
Mumps:	
California	350
Idaho	94
Indiana	47
Kansas	95
Missouri	53
New Mexico	4
Oklahoma [1]	10
Oregon	20
South Dakota	3
Washington	31
Opthalmia neonatorum:	
California	4
Indiana	1
New Mexico	2
Oregon	1
Virginia	1
Paratyphoid fever:	
California	2
Kansas	1
New Mexico	1
Texas	11
Virginia	15
Washington	1
Psittacosis:	
California	3
Puerperal septicemia:	
New Mexico	1
Rabies in animals.	
California	20
Missouri	4
Washington	7
Rabies in man.	
California	1
Relapsing fever:	
California	1
Scabies.	
Oklahoma [1]	4
Oregon	91
Septic sore throat:	
California	8
Idaho	1
Kansas	3
Missouri	16
Oklahoma [1]	32
Oregon	3
Virginia	16
Tetanus:	
California	6
Kansas	1
Virginia	1
Washington	1
Trachoma:	
California	7
Indiana	5
Oklahoma [1]	7
South Dakota	25
Virginia	2
Trichinosis:	
California	1
South Dakota	1
Tularaemia:	
Missouri	2
Virginia	1
Typhus fever:	
Virginia	3
Undulant fever:	
California	7
Indiana	6
Kansas	5
Missouri	18
Oregon	1
Virginia	3
Washington	1
Vincent's angina:	
Kansas	3
Oklahoma [1]	3
Oregon	17
Whooping cough:	
California	668
Indiana	64
Kansas	138
Missouri	88
New Mexico	23
Oklahoma [1]	8
Oregon	30
South Dakota	19
Virginia	234
Washington	41

[1] Exclusive of Oklahoma City and Tulsa

WEEKLY REPORTS FROM CITIES

City reports for week ended November 19, 1932

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine											
Portland	0		0	0	3	3	0	0	0	3	17
New Hampshire:											
Concord	0		0	0	1	0	0	0	0	0	6
Nashua	0		0	0	0	1	0	0	0	0	
Vermont.											
Barre	0		0	0	0	0	0	1	0	0	8
Massachusetts:											
Boston	8		0	38	28	52	0	3	0	50	183
Fall River	0		0	0	0	4	0	2	0	1	29
Springfield	0	1	0	0	0	5	0	5	0	1	32
Worcester	8		0	0	2	15	0	1	1	9	43
Rhode Island:											
Pawtucket	0		0	0	0	0	0	0	0	0	19
Providence	2		0	0	2	13	0	3	0	7	65
Connecticut.											
Bridgeport	0	4	0	9	2	6	0	3	0	5	41
Hartford	2	1	0	0	2	4	0	4	0	1	29
New Haven	1	1	0	0	3	2	0	1	1	8	55
New York:											
Buffalo	1		0	2	15	29	0	6	0	17	120
New York	47	18	7	153	105	111	2	60	8	71	1,326
Rochester	22		0	1	5	19	0	1	0	5	71
Syracuse	0		0	1	9	12	0	0	0	3	53

City reports for week ended November 19, 1932—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
New Jersey:											
Camden	6		0	1	2	2	0	4	0	1	44
Newark	0	13	0	40	3	7	0	6	1	9	92
Trenton	0		0	0	8	9	0	6	0	0	45
Pennsylvania:											
Philadelphia	5	4	0	5	29	80	0	33	2	9	478
Pittsburgh	11		1	2	10	43	0	5	1	12	142
Reading	8		0	11	1	2	0	1	0	3	29
Ohio:											
Cincinnati	3		0	0	10	16	0	9	0	3	113
Cleveland	10	113	4	1	10	80	0	10	2	15	181
Columbus	6	2	2	51	2	12	0	4	0	7	86
Toledo	4		0	7	3	37	0	2	0	2	57
Indiana:											
Fort Wayne	0		0	0	2	3	0	0	0	0	14
Indianapolis	2		0	1	14	6	0	3	1	0	
South Bend	0		0	0	3	9	0	1	0	6	16
Terre Haute	0		0	1	2	7	1	1	0	0	23
Illinois:											
Chicago	23	6	3	40	36	166	0	33	3	22	618
Springfield	4	1	0	0	0	14	0	1	0	0	18
Michigan:											
Detroit	17	2	2	42	18	93	0	17	1	86	237
Flint	2	21	0	2	2	5	0	0	0	7	18
Grand Rapids	0		0	0	2	5	0	0	0	5	29
Wisconsin:											
Kenosha	0		0	1	0	3	0	0	0	3	9
Madison	0			1		0	0		0	1	
Milwaukee	4	2	2	8	8	16	0	3	1	34	105
Racine	2		0	0	1	2	0	0	0	6	9
Superior	0		0	0	3	0	0	0	0	0	12
Minnesota:											
Duluth	1		0	2	4	0	0	0	0	0	14
Minneapolis	4		1	15	6	11	0	5	1	9	95
St. Paul	0		0	0	5	23	0	2	0	13	57
Iowa:											
Des Moines	6			0		7	0		0	0	24
Sioux City	1			0		1	0		0	0	
Waterloo	0			0		0	0		0	1	
Missouri:											
Kansas City	1		0	10	7	15	0	4	0	0	86
St. Joseph	10		0	0	4	1	0	0	0	0	30
St. Louis	24		0	1	9	17	0	9	5	1	199
North Dakota:											
Fargo	0		0	0	0	1	0	0	0	0	7
Grand Forks	0		0	19	0	0	0	0	0	0	
Nebraska:											
Lincoln	1			0		1	0		0	0	
Omaha	16		0	2	4	20	0	2	0	0	40
Kansas:											
Topeka	2		0	5	3	3	0	0	0	0	13
Wichita	1		0	0	3	5	0	0	0	0	30
Delaware:											
Wilmington	0		0	0	0	0	0	1	0	3	26
Maryland:											
Baltimore	3	7	3	3	21	39	0	10	3	18	207
Cumberland	0	0	0	0	1	1	0	2	0	0	10
Frederick											
District of Col.:											
Washington	3	3	1	1	10	7	0	16	6	12	131
Virginia:											
Lynchburg	3		0	0	1	1	0	0	0	1	13
Richmond	5		1	0	4	4	0	3	3	0	48
Roanoke	3		0	0	1	8	0	0	1	0	8
West Virginia:											
Charleston	2		0	0	1	3	0	1	0	3	12
Huntington	9		0	13	0	15	0	0	0	0	
Wheeling	0		0	68	1	1	0	0	0	5	19
North Carolina:											
Raleigh	1		0	0	0	5	0	0	0	0	17
Wilmington	1		0	0	1	1	0	0	0	0	10
Winston-Salem	3		0	1	1	7	0	0	0	4	9
South Carolina:											
Charleston	1	6	1	0	0	0	0	1	1	0	21
Columbia	1		0	0	2	2	0	0	0	0	14
Greenville	0			0		1	0		0	0	

City reports for week ended November 19, 1932—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Georgia:											
Atlanta	16	1	0	0	12	14	0	5	0	9	77
Brunswick	1	-	0	0	0	0	0	0	0	0	2
Savannah	3	3	1	0	2	2	0	1	1	0	31
Florida:											
Miami	0	1	0	0	0	0	0	0	0	0	22
Tampa	4	-	0	0	0	1	0	3	0	1	23
Kentucky:											
Covington	-	-	-	-	-	-	-	-	-	-	-
Lexington	1	-	0	0	2	3	0	3	0	0	12
Louisville	10	2	0	0	4	14	0	6	0	3	78
Tennessee:											
Memphis	14	-	0	1	3	5	0	5	4	0	76
Nashville	0	-	2	0	4	1	0	5	0	0	55
Alabama:											
Birmingham	8	4	0	1	3	10	0	2	2	2	65
Mobile	4	-	1	0	1	3	0	0	0	0	22
Montgomery	0	1	-	1	-	1	0	-	0	0	-
Arkansas:											
Fort Smith	0	-	0	0	0	2	0	0	0	0	-
Little Rock	2	-	0	0	0	3	0	1	0	1	2
Louisiana:											
New Orleans	12	8	5	0	6	12	0	12	2	0	159
Shreveport	1	-	0	0	0	1	0	0	0	0	31
Oklahoma:											
Muskogee	0	-	0	0	0	1	0	0	0	0	-
Tulsa	1	-	-	0	-	4	0	-	0	1	-
Texas:											
Dallas	18	-	0	0	4	9	0	1	0	0	63
Fort Worth	8	-	0	1	1	20	0	1	0	0	34
Galveston	0	-	0	0	0	1	0	0	0	0	7
Houston	17	-	0	0	8	4	0	5	0	0	85
San Antonio	4	-	2	0	7	0	0	11	0	0	57
Montana:											
Billings	0	-	0	0	0	0	0	0	0	0	8
Great Falls	-	-	-	-	-	-	-	-	-	-	-
Helena	0	-	0	0	0	0	0	0	0	0	5
Missoula	0	-	0	0	0	0	0	0	0	0	2
Idaho:											
Boise	0	-	0	1	0	0	6	0	0	0	1
Colorado:											
Denver	4	-	1	2	6	12	0	2	0	4	80
Pueblo	0	-	0	0	0	1	0	0	3	0	6
New Mexico:											
Albuquerque	1	2	3	1	1	1	0	3	0	0	13
Arizona:											
Phoenix	0	-	4	0	3	0	0	2	0	0	-
Utah:											
Salt Lake City	0	-	0	0	3	2	0	0	0	0	35
Nevada:											
Reno	0	-	0	0	0	1	0	0	0	0	3
Washington:											
Seattle	1	-	-	0	-	12	0	-	1	2	-
Spokane	0	-	-	2	-	1	0	-	0	0	-
Tacoma	0	-	1	1	1	3	0	0	0	3	26
Oregon:											
Portland	2	2	0	1	6	10	0	0	0	0	74
Salem	0	-	0	2	-	0	0	-	0	0	-
California:											
Los Angeles	28	323	7	16	15	52	0	29	0	19	301
Sacramento	0	10	0	2	5	3	0	3	0	10	26
San Francisco	4	67	0	2	4	7	0	8	0	36	146

City reports for week ended November 19, 1932—Continued

State and city	Meningococcus meningitis		Polio-myelitis cases	State and city	Meningococcus meningitis		Polio-myelitis cases
	Cases	Deaths			Cases	Deaths	
Connecticut:				Kansas:			
Bridgeport	1	0	0	Topeka	0	1	0
New York:				District of Columbia:			
Buffalo	1	0	0	Washington	1	0	0
New York	4	1	2	Virginia:			
Rochester	1	0	0	Richmond	0	0	1
Pennsylvania:							
Philadelphia	0	1	8	Tennessee:			
Pittsburgh	0	0	1	Memphis	0	0	1
Ohio:				Louisiana:			
Cleveland	1	1	0	New Orleans	0	0	2
Columbus	0	0	1				
Toledo	0	1	0	Washington:			
Indiana:				Seattle	0	0	1
Indianapolis	1	0	1	California:			
Illinois:				Los Angeles	0	1	0
Chicago	12	2	0	San Francisco	0	0	1
Michigan:							
Detroit	1	0	1				
Flint	1	0	0				

Lethargic encephalitis.—Cases: Pittsburgh, 1; Detroit, 2; Atlanta, 1.
Pellagra.—Cases: Wilmington, 1; Atlanta, 1; Birmingham, 3.
Typhus fever.—Cases: Baltimore, 1; Savannah, 3.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended November 12, 1932.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases for the week ended November 12, 1932, as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis				1	1				1	3
Chicken pox		23	1	71	272	53	15	4	65	504
Diphtheria	1	5	2	38	13	5	1	3	3	71
Erysipelas					1	3			1	5
Influenza		27			16	3			242	288
Lethargic encephalitis					1					1
Measles		3	3	118	323	9		37	15	508
Mumps					81	5				86
Paratyphoid fever					2					2
Pneumonia		1			4				12	17
Poliomyelitis			2	5	5			1		13
Scarlet fever	1	4	5	76	86	16	11	7	28	234
Smallpox						1				1
Trachoma						1			3	4
Tuberculosis	1	2	2	73	20	8		2	8	116
Typhoid fever	3	1	4	45	11	11		4	1	80
Undulant fever					4					4
Whooping cough				134	78	37	4	2	29	284

GREAT BRITAIN

Scotland—Vital statistics—Quarter ended September 30, 1932.—The Registrar General of Scotland has published the following statistics for the third quarter of the year 1932:

Population (provisional)	4,880,000
Births	22,030
Birth rate per 1,000 population	18.0
Deaths	13,191
Death rate per 1,000 population	10.8
Marriages	9,343
Deaths under 1 year	1,397
Deaths under 1 year per 1,000 births	63
Deaths from—	
Bronchitis	396
Broncho-pneumonia	313
Cancer	1,897
Cerebrospinal fever	41
Diabetes	143
Diphtheria	69
Dysentery	4
Erysipelas	25
Deaths from—Continued	
Heart disease	2,096
Influenza	54
Lethargic encephalitis	15
Measles	35
Nephritis, acute	49
Nephritis, chronic	228
Paratyphoid fevers	6
Pneumonia	291
Poliomyelitis	2
Puerperal sepsis	35
Scarlet fever	41
Syphilis	29
Tetanus	5
Tuberculosis	852
Typhoid fever	7
Whooping cough	73

YUGOSLAVIA

Communicable diseases—October, 1932.—During the month of October, 1932, certain communicable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	150	15	Paratyphoid fever	94	5
Cerebrospinal meningitis	4	1	Poliomyelitis	63	9
Diphtheria and croup	1,675	144	Scarlet fever	679	24
Dysentery	805	84	Sepsis	12	3
Erysipelas	174	6	Tetanus	38	17
Measles	388	6	Typhoid fever	1,805	139

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of the quarantinable diseases appeared in the Public Health Reports for November 25, 1932, pp 2231–2244. A similar cumulative table will appear in the Public Health Reports to be issued December 30, 1932, and thereafter, at least for the time being, in the issue published on the last Friday of each month.)

Cholera

Philippine Islands.—During the week ended November 26, 1932, 35 cases of cholera with 26 deaths were reported in the Province of Samar, Philippine Islands.

Plague

Argentina.—On November 10, 1932, 4 deaths from plague were reported in the Province of Rioja, Argentina.

Hawaii Territory.—On November 14, 1932, a plague-infected rat was found in Paauilo, in the interior of Hamakua District, island of Hawaii. The location is about 175 miles from Honolulu which is on the island of Oahu.

On vessel.—Three members of the crew of the Greek S. S. *Patris*, suffering from plague, were removed November 8, 1932, at Beirut, Syria.

Yellow Fever

Brazil.—Deaths from yellow fever have been reported in Brazil as follows: State of Ceara, 1 death July 26, 1932; 1 death September 14. State of Pernambuco, 1 death August 5, and 1 death September 4.

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UNITED STATES TREASURY DEPARTMENT

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BY THE UNITED STATES PUBLIC HEALTH SERVICE

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of public health.

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CONTENTS

PUBLIC HEALTH REPORTS

VOL. 47 DECEMBER 16, 1932 NO. 51

SICKNESS AMONG MALE INDUSTRIAL EMPLOYEES DURING THE THIRD QUARTER OF 1932 [1]

By DEAN K. BRUNDAGE, *Statistician, Office of Industrial Hygiene and Sanitation, United States Public Health Service*

The incidence rate of illness causing absence from work for more than one week among 131,000 male industrial employees was lower in the third quarter of 1932 than in the corresponding period of any one of the three preceding years. In 1931 and 1932 identical industrial establishments were included, and in 1929 and 1930 a large majority of the groups under consideration was the same.

Both respiratory and nonrespiratory disease groups participated in the indicated decline in sickness frequency, although the percentage decrease was greater in the respiratory group.

In comparing the frequency of different respiratory diseases during the third quarter of 1932 with the rate for the same months of 1931, one finds that influenza and the so-called "minor" respiratory diseases (bronchitis, tonsillitis, etc.) decreased in frequency during the recent quarter-year, but the more serious respiratory diseases, such as pneumonia and tuberculosis, did not recede from the level established during the third quarter of 1931.

Turning to the nonrespiratory diseases one finds that the rate for each one of the digestive disease categories shown in the accompanying table, with the exception of hernia, was lower in the third quarter of 1932 than during the corresponding period of any of the three preceding years. The same result was found for the rheumatic group of diseases as a whole and for each of the three subdivisions of that group shown in Table 1. The occurrence of epidemic diseases among the industrial workers under consideration appeared also to be at ebb tide during the quarter-year under review. Again a marked decrease occurred in the incidence of diseases of the skin. A favorable trend for this group may be noted in the statistics for 1931 as well as for those covering the first three quarters of 1932.

[1] The report for the second quarter was published in PUBLIC HEALTH REPORTS for Nov. 25, 1932.

A few disease groups exhibit evidence of resistance to the general downward trend of sickness incidence among the industrial workers covered in the record. Among these may be mentioned neurasthenia and kindred conditions, hernia, and the so-called "degenerative" diseases—i. e., diseases of the heart and arteries and genito-urinary diseases—the rates for which were all slightly higher in the third quarter of 1932 than in the same months of 1929.

The reporting establishments are located in different parts of the United States, but a preponderance of the cooperating companies lie east of the Mississippi and north of the Ohio. As pointed out in previous communications, both full-time and part-time workers are included, but very few unemployed persons, since memberships in the associations are usually terminated automatically when employees are indefinitely laid off.

TABLE 1.—*Frequency of disability lasting eight calendar days or longer in the third quarter of 1932 compared with the same quarter of 1931, 1930, and 1929 (male morbidity experience of 33 industrial establishments which reported their cases to the United States Public Health Service during all four years)*[1]

Diseases and disease groups which caused disability. (Numbers in parentheses are disease title numbers from the International List of the Causes of Death, Fourth Revision, Paris, 1929)	Annual number of disabilities per 1,000 men in third quarter of—			
	1932	1931	1930	1929
Sickness and nonindustrial injuries[2]	73.5	81.2	78.0	88.8
Nonindustrial injuries	13.4	14.5	12.5	13.6
Sickness[2]	60.1	66.7	65.5	75.2
Respiratory diseases	15.1	17.1	18.0	24.0
Influenza and grippe (11)	4.1	4.4	4.4	6.7
Bronchitis—acute and chronic (106)	2.2	2.6	2.8	3.6
Pneumonia—all forms (107-109)	.8	.7	1.2	1.5
Diseases of the pharynx and tonsils (115a)	3.4	4.2	4.8	6.0
Tuberculosis of the respiratory system (23)	1.3	1.1	.9	1.3
Other respiratory diseases (104, 105, 110-114)	3.3	4.1	3.9	4.9
Nonrespiratory diseases	45.0	49.6	47.5	51.2
Diseases of the stomach, cancer excepted (117, 118)	4.0	5.0	4.8	4.7
Diarrhea and enteritis (120)	1.5	2.0	1.9	2.3
Appendicitis (121)	3.2	3.4	3.7	4.8
Hernia (122a)	2.4	2.0	1.5	1.8
Other digestive diseases (115b, 116, 122b 129)	2.7	3.2	2.9	3.7
Rheumatic group, total	8.2	10.0	10.0	10.3
Rheumatism—acute and chronic (56 58)	3.5	4.3	4.5	4.6
Diseases of the organs of locomotion (156b)	2.7	3.2	3.1	3.5
Neuralgia, neuritis, and sciatica (87a)	2.0	2.5	2.4	2.2
Neurasthenia and the like (part of 87b)	1.5	1.6	1.2	1.4
Other diseases of the nervous system (78-85, part of 87b)	1.4	1.1	1.2	1.3
Diseases of the heart and arteries and nephritis (90-99, 102, 130-132)	4.0	3.1	2.8	3.5
Other genito-urinary diseases (133-138)	2.3	2.6	2.3	2.1
Diseases of the skin (151-153)	3.2	3.8	4.4	4.6
Epidemic and endemic diseases except influenza (1-10, 12-18, 33, 37, 38, part of 39 and 44)	1.1	1.4	1.4	1.2
Ill-defined and unknown causes (200)	2.6	3.0	2.3	1.9
All other diseases (19-22, 24-32, 36, part of 39 and 44, 40-43, 45-55, 59-77, 88, 89, 100, 101, 103, 154-156a, 157, 162)	6.9	7.4	7.1	7.6
Average number of males covered in the record	131,497	162,716	160,115	163,851
Number of companies included	33	33	26	23

[1] Except that the rates for 1930 and 1929 cover 26 and 23 companies, respectively, instead of 33 in 1931 and 1932. The rates for the corresponding periods of preceding years differ somewhat from those shown in earlier publications because data for additional groups have become available in the meantime.
[2] Exclusive of disability from venereal disease.

EXTENT OF RURAL HEALTH SERVICE IN THE UNITED STATES, 1928-1932

According to data obtained by the United States Public Health Service from the health departments of the States, Table 1 presents a list, by States, of counties, townships, or districts in which the rural sections thereof at the beginning of the calendar years 1928, 1929, 1930, 1931, and 1932, respectively, were provided with health service under the administration of local whole-time health officers.

The list for 1932 includes, as it did in 1931, all counties, townships, or districts which are operating in groups under the direction of local whole-time health officers, who are maintained jointly by the pooling of local official appropriations. Also all counties, townships, or districts are included in which there are whole-time local health organizations maintained entirely by the State health departments.

TABLE 1.—*List of counties, townships, or districts in which as of Jan. 1, 1928, 1929, 1930, 1931, and 1932, respectively, rural sections were provided with health service under local whole-time health officers*

ALABAMA

1928	1929	1930	1931	1932
Baldwin.	Baldwin.	Baldwin.	Baldwin.	Baldwin.
Barbour.	Barbour.	Barbour.	Barbour.	Barbour
Calhoun.	Blount.	Blount.	Blount.	Blount.
Chambers.	Bullock.	Bullock.	Bullock.	Bullock.
Coffee.	Calhoun.	Calhoun.	Calhoun.	Calhoun.
Colbert.	Chambers.	Chambers.	Chambers	Chambers.
Covington.	Cherokee.	Cherokee.	Cherokee	Cherokee.
Cullman.	Clarke.	Choctaw.	Choctaw.	Choctaw.
Dale.	Cleburne.	Clarke.	Clarke.	Clarke
Dallas.	Coffee.	Cleburne.	Cleburne.	Cleburne.
Elmore.	Colbert.	Coffee.	Coffee.	Coffee.
Escambia.	Conecuh.	Colbert.	Colbert.	Colbert.
Etowah.	Covington.	Conecuh.	Conecuh.	Conecuh.
Franklin.	Crenshaw.	Covington.	Covington	Covington.
Houston.	Cullman.	Crenshaw.	Crenshaw.	Crenshaw.
Jefferson.	Dale.	Cullman.	Cullman.	Cullman.
Lauderdale.	Dallas.	Dale.	Dale	Dale.
Lawrence.	De Kalb.	Dallas.	Dallas	Dallas
Lee.	Elmore.	De Kalb.	De Kalb	De Kalb.
Limestone.	Escambia.	Elmore.	Elmore	Elmore.
Madison.	Etowah.	Escambia.	Escambia.	Escambia.
Marengo.	Franklin.	Etowah.	Etowah	Etowah.
Marshall.	Houston.	Franklin.	Franklin.	Franklin.
Mobile.	Jackson.	Geneva.	Geneva	Geneva.
Monroe.	Jefferson.	Houston.	Houston.	Houston.
Montgomery.	Lamar.	Jackson.	Jackson.	Jackson.
Morgan.	Lauderdale.	Jefferson.	Jefferson	Jefferson.
Pike.	Lawrence.	Lamar.	Lamar	Lamar.
Sumter.	Lee.	Lauderdale.	Lauderdale.	Lauderdale.
Talladega.	Limestone.	Lawrence.	Lawrence.	Lawrence.
Tallapoosa.	Lowndes.	Lee.	Lee	Lee.
Tuscaloosa.	Macon.	Limestone.	Limestone.	Limestone.
Walker.	Madison.	Lowndes.	Lowndes.	Lowndes.
	Marengo.	Macon.	Macon.	Macon.
	Marshall.	Madison.	Madison.	Madison.
	Mobile.	Marengo.	Marengo.	Marengo.
	Monroe.	Marshall.	Marion.	Marion.
	Montgomery.	Mobile.	Marshall.	Marshall.
	Morgan.	Monroe.	Mobile.	Mobile.
	Pickens.	Montgomery.	Monroe.	Monroe.
	Pike.	Morgan.	Montgomery.	Montgomery.
	Shelby.	Pickens.	Morgan.	Morgan.
	Sumter.	Shelby.	Perry.	Perry.
	Talladega.	Sumter.	Pickens.	Pickens.
	Tallapoosa.	Talladega.	Pike.	Pike.
	Tuscaloosa.	Tallapoosa.	Shelby.	Shelby.
	Walker.	Tuscaloosa.	Sumter.	Sumter.

TABLE 1.—*List of counties, townships, or districts in which as of Jan. 1, 1928, 1929, 1930, 1931, and 1932, respectively, rural sections were provided with health service under local whole-time health officers*—Continued

ALABAMA—Continued

1928	1929	1930	1931	1932
	Washington.	Walker.	Talladega.	Talladega.
	Wilcox.	Washington.	Tallapoosa.	Tallapoosa.
	Winston.	Wilcox.	Tuscaloosa.	Tuscaloosa.
		Winston.	Walker.	Walker.
			Washington.	Washington.
			Wilcox.	Wilcox.
			Winston.	Winston.

ARIZONA

1928	1929	1930	1931	1932
Cochise.	Cochise.	Cochise.	Cochise.	Cochise.
Coconino.	Coconino.	Coconino.	Coconino.	Gila.
Yuma.	Yuma	Yuma	Gila.	Maricopa.
			Maricopa.	Pima.
			Pima	Yuma.
			Yuma.	

ARKANSAS

1928	1929	1930	1931	1932
Arkansas.	Arkansas	Arkansas.	Arkansas.	Arkansas.[1]
Ashley.	Ashley.	Ashley	Ashley.	Ashley.
Chicot.	Chicot.	Conway	Clark	Bradley.
Conway.	Conway.	Cross	Conway.	Clark.
Crittenden.	Crittenden	Desha.	Cross	Cleburne.
Cross.	Cross.	Drew.	Desha.	Conway.
Desha.	Desha.	Garland	Drew	Crittenden.
Drew.	Drew	Jackson	Garland	Cross
Garland.	Faulkner.	Jefferson	Jackson.	Desha.
Jackson.	Garland	Little River	Jefferson	Drew.
Jefferson.	Jackson	Mississippi.	Little River.	Garland.
Little River	Jefferson	Monroe	Lonoke.	Jackson.
Mississippi	Little River.	Phillips.	Mississippi.	Jefferson
Monroe.	Mississippi.	Pope.	Monroe	Little River.
Phillips.	Monroe.	Pulaski	Ouachita.	Lonoke.[1]
Pope.	Phillips.	Saline.	Phillips.	Miller
Pulaski.	Pope.	Sebastian.	Pope	Mississippi.
Saline.	Pulaski.	Union.	Pulaski.	Monroe.
Union.	Saline	White	Saline	Ouachita.
Woodruff.	Sebastian.	Woodruff.	Sebastian.	Perry.
Yell.	Union.	Yell	Union.	Phillips.
	White		White.	Pope
	Woodruff.		Woodruff.	Prairie.[1]
	Yell.		Yell	Pulaski.
				Saline
				Sebastian.
				Union.
				White
				Woodruff.
				Yell.

CALIFORNIA

1928	1929	1930	1931	1932
Los Angeles.	Contra Costa.	Contra Costa.	Contra Costa.	Contra Costa.
Monterey.	Los Angeles.	Los Angeles.	Imperial.	Imperial.
Orange.	Madera.	Madera.	Los Angeles.	Los Angeles.
Riverside.	Monterey.	Monterey	Madera	Madera.
San Diego.	Orange.	Orange	Monterey.	Monterey.
San Joaquin.	Riverside	Riverside.	Orange.	Orange.
San Luis Obispo	San Diego.	San Diego.	Riverside.	Riverside.
Santa Barbara.	San Joaquin.	San Joaquin.	San Diego.	San Bernardino.
Yolo	San Luis Obispo.	San Luis Obispo.	San Joaquin.	San Diego.
	Santa Barbara.	Santa Barbara.	San Luis Obispo.	San Joaquin.
	Yolo.	Stanislaus.	Santa Barbara.	San Luis Obispo.
		Yolo.	Stanislaus.	Santa Barbara.
			Yolo.	Stanislaus.
				Yolo.

[1] Included in 1 district of 3 counties.

Table 1.—*List of counties, townships, or districts in which as of Jan. 1, 1928, 1929, 1930, 1931, and 1932, respectively, rural sections were provided with health service under local whole-time health officers*—Continued

COLORADO

1928	1929	1930	1931	1932
Otero.	Otero.	Otero.	Otero.	Otero

CONNECTICUT

Fairfield.[1]	Fairfield.[1]	Fairfield.[1]	Fairfield[1]	Fairfield.[1]

DELAWARE

Kent.	Kent.	Kent.	Kent.	Kent.
Newcastle	Newcastle.	Newcastle.	Newcastle	Newcastle.
Sussex.	Sussex	Sussex.	Sussex.	Sussex.

FLORIDA

Manatee.	Manatee.	Manatee.	Leon.	Leon
Polk.	Polk.	Sarosota.	Manatee	Taylor.
Sarasota.	Sarasota.		Taylor	

GEORGIA

Baldwin.	Baldwin.	Baldwin	Baldwin.	Baldwin.
Bartow.	Bartow.	Bartow	Bartow.	Bartow.
Bibb.	Bibb.	Bibb.	Bibb.	Bibb
Brooks.	Brooks	Brooks	Brooks	Brooks.
Chatham.	Chatham.	Chatham	Chatham	Catoosa[2]
Clarke.	Clarke.	Clarke	Clarke.	Chatham.
Cobb.	Cobb.	Clinch	Clinch	Chatooga.[3]
Coffee.	Coffee.	Cobb.	Cobb	Clarke.
Colquitt.	Colquitt.	Coffee	Coffee	Cobb.
Crisp.	Crisp	Colquitt.	Colquitt.	Coffee.
Decatur.	Decatur.	Crisp.	Decatur.	Colquitt.
De Kalb.	De Kalb	Decatur.	De Kalb	Dade[3]
Dougherty.	Dougherty.	De Kalb	Dougherty.	Decatur.
Floyd.	Emanuel.	Dougherty	Floyd.	De Kalb.
Glynn.	Floyd.	Emanuel.	Glynn	Dougherty.
Hall.	Glynn.	Floyd.	Grady.	Floyd.
Laurens.	Grady.	Glynn.	Hall.	Glynn
Lowndes.	Hall.	Grady.	Jefferson	Gordon.[2]
Mitchell.	Laurens.	Hall	Jenkins.	Grady.
Richmond.	Lowndes.	Jefferson.	Laurens.	Hall.
Spalding.	Mitchell.	Jenkins.	Lowndes	Jefferson.
Sumter.	Richmond.	Laurens	Mitchell	Jenkins.
Thomas.	Spalding.	Lowndes.	Richmond	Laurens.
Troup.	Sumter.	Mitchell.	Spalding	Lowndes.
Walker.	Thomas.	Richmond	Sumter.	Mitchell
Ware.	Troup.	Spalding.	Thomas.	Murray.[2]
Washington.	Walker.	Sumter.	Troup.	Richmond.
	Ware.	Thomas.	Walker.	Spalding.
	Washington.	Troup	Ware.	Sumter.
	Wayne.	Walker.	Washington	Thomas.
	Worth.	Ware.		Troupe.
		Washington		Walker.[3][4]
		Wayne.		Ware.
		Worth.		Washington.
				Whitfield.[2]

IDAHO

		Bonneville.	Twin Falls.	Twin Falls.
		Twin Falls.		

[1] Township.
[2] Included in 1 district of 4 counties.
[3] Included in 1 district of 3 counties.
[4] Walker County also included in a tricounty district.

TABLE 1.—*List of counties, townships, or districts in which as of Jan. 1, 1928, 1929, 1930, 1931, and 1932, respectively, rural sections were provided with health service under local whole-time health officers*—Continued

ILLINOIS

1928	1929	1930	1931	1932
Cook.	Cook.	Du Page.	Du Page.	Du Page.
Du Page.	Du Page.	Morgan.	Morgan.	
Morgan.	Morgan.			
	Pulaski.			

IOWA

1928	1929	1930	1931	1932
			Washington.	Des Moines.
			Woodbury.	Washington.
				Woodbury.

KANSAS

1928	1929	1930	1931	1932
Butler.	Brown.	Brown.	Brown.	Brown.
Cherokee.	Butler.	Butler.	Butler	Butler.
Ellis.	Cherokee.	Cherokee.	Cherokee.	Cherokee.
Geary.	Geary.	Dickinson.	Dickinson.	Dickinson.
Greenwood.	Greenwood.	Geary.	Geary.	Geary.
Jefferson.	Jefferson.	Greenwood.	Greenwood	Greenwood.
Lyon.	Lyon.	Lyon	Lyon.	Lyon.
Marion.	Marion.	Marion.	Marion.	Marion.
Ottawa.	Ottawa.	Ottawa	Ottawa	Sedgwick.
Shawnee.	Shawnee.	Sedgwick.	Sedgwick	Shawnee.
		Shawnee.	Seward	
			Shawnee.	

KENTUCKY

1928	1929	1930	1931	1932
Ballard.	Ballard.	Ballard.	Bell.	Adair
Boyd.	Bell.	Bell.	Boyd	Allen.
Breathitt.	Boyd.	Boyd.	Breathitt.	Anderson.
Carlisle.	Breathitt	Breathitt.	Bullitt.	Barren.
Carter.	Bullitt.	Bullitt.	Calloway.	Bath.
Daviess.	Carlisle.	Calloway.	Carlisle.	Bell.
Elliott.	Carter.	Carlisle.	Carter.	Boyd.
Estill.	Daviess.	Carter.	Daviess.	Breathitt.
Fayette.	Elliott.	Daviess.	Elliott.	Bullitt.
Floyd.	Estill.	Elliott.	Estill.	Butler.
Fulton.	Fayette.	Estill.	Fayette.	Caldwell.
Henderson	Floyd.	Fayette.	Floyd.	Calloway.
Hickman.	Fulton.	Floyd.	Fulton.	Carlisle.
Hopkins.	Henderson.	Fulton.	Henderson.	Carter.
Johnson.	Hickman.	Henderson.	Hickman.	Casey.
Knott.	Hopkins.	Hickman.	Hopkins.	Clinton.
Lawrence	Johnson.	Hopkins.	Jefferson.	Daviess.
Lee.	Knott.	Jefferson	Kenton.	Edmonson.
Leslie.	Knox.	Johnson.	Knott.	Elliott.
Letcher.	Lawrence.	Kenton.	Knox.	Estill.
Magoffin.	Lee.	Knott.	Lawrence.	Fayette.
Martin.	Leslie.	Knox.	Lee.	Fleming.
Mason.	Letcher.	Lawrence.	Leslie	Floyd.
McLean.	Magoffin.	Lee.	Letcher.	Fulton.
Menifee.	Martin.	Leslie.	Lincoln.	Gallatin.
Morgan.	Mason.	Letcher.	Madison.	Grant.
Owsley.	McLean.	Magoffin.	Magoffin	Grayson.
Perry.	Menifee.	Martin.	Martin.	Green.
Pike	Monroe.	Mason.	Mason.	Greenup.
Scott.	Morgan.	McLean.	McLean.	Hancock.
Webster.	Ohio.	Menifee.	Menifee.	Harrison.
Wolfe.	Owsley.	Monroe.	Monroe.	Hart.
	Perry.	Morgan.	Morgan.	Henderson.
	Pike.	Muhlenberg	Muhlenberg.	Hickman.
	Scott.	Ohio.	Ohio.	Hopkins.
	Trigg.	Owsley.	Owsley.	Jackson.
	Webster.	Perry.	Perry.	Jefferson.
	Whitley.	Pike.	Pike.	Kenton.
	Wolfe.	Scott.	Scott.	Knott.
		Trigg.	Trigg.	Knox.
		Union.	Union.	Laurel.

TABLE 1.—*List of counties, townships, or districts in which as of Jan. 1, 1928, 1929, 1930, 1931, and 1932, respectively, rural sections were provided with health service under local whole-time health officers*—Continued

KENTUCKY—Continued

1928	1929	1930	1931	1932
		Wayne.	Wayne.	Lawrence.
		Webster.	Webster.	Lee
		Whitley.		Leslie
		Wolfe.		Letcher.
				Lewis.
				Lincoln
				McCreary.
				McLean.
				Madison.
				Magoffin.
				Marshall.
				Martin.
				Mason
				Meade
				Menifee
				Metcalfe
				Monroe.
				Morgan
				Muhlenberg.
				Nicholas.
				Ohio.
				Owen
				Owsley.
				Perry.
				Pike.
				Powell.
				Pulaski.
				Robertson.
				Rockcastle.
				Rowan.
				Scott
				Todd
				Trigg
				Trimble
				Union.
				Warren.
				Wayne.
				Webster
				Whitley.
				Wolfe.

LOUISIANA [1]

1928	1929	1930	1931	1932
Assumption.	Assumption.	Assumption.	Assumption.	Assumption.
Avoyelles.	Avoyelles.	Avoyelles	Avoyelles.	Avoyelles.
Caddo.	Caddo	Caddo	Caddo	Caddo.
Caldwell.	Caldwell.	Caldwell.	Caldwell.	Caldwell.
Catahoula.	Catahoula.	Catahoula.	Catahoula.	Catahoula.
Claiborne.	Claiborne.	Claiborne	Claiborne.	Claiborne.
Concordia.	Concordia.	Concordia.	Concordia.	Concordia.
De Soto.	De Soto.	De Soto	De Soto	De Soto
East Carroll.	East Carroll.	East Carroll.	East Carroll	East Carroll.
Franklin.	Franklin.	Franklin.	Franklin.	Evangeline.
Iberia.	Iberia.	Iberia.	Iberia.	Franklin.
Lafayette.	Iberville	Iberville.	Iberville	Iberia
Lafourche.	Lafayette	Lafayette.	Lafayette	Iberville
La Salle.	Lafourche.	Lafourche.	Lafourche.	Lafayette.
Madison.	La Salle.	La Salle.	La Salle.	Lafourche.
Morehouse.	Madison.	Lincoln.	Lincoln	La Salle
Natchitoches.	Morehouse.	Madison	Madison.	Lincoln.
Ouachita.	Natchitoches.	Morehouse.	Morehouse	Madison.
Plaquemines.	Ouachita.	Natchitoches.	Natchitoches.	Morehouse
Rapides.	Point Coupee.	Ouachita	Ouachita	Natchitoches.
Richland.	Rapides.	Point Coupee.	Point Coupee.	Ouachita.
St. Martin.	Richland.	Rapides.	Rapides.	Point Coupee.
St. Mary.	St. Landry.	Richland.	Richland.	Rapides
Tangipahoa.	St. Martin.	St. Landry.	St. Landry.	Richland.
Tensas.	St. Mary.	St Martin.	St. Martin.	St. Landry.
Washington.	Tensas.	St Mary.	St. Mary.	St. Martin.
Webster.	Terrebonne.	Tensas.	Tensas.	St. Mary.
West Carroll.	Webster.	Terrebonne.	Terrebonne.	Tensas.
	West Carroll.	Washington.	Washington.	Terrebonne.
		Webster.	Webster.	Washington.
		West Carroll.	West Carroll.	Webster.
				West Carroll.

[1] Parishes.

TABLE 1.—*List of counties, townships, or districts in which as of Jan. 1, 1928, 1929, 1930, 1931, and 1932, respectively, rural sections were provided with health service under local whole-time health officers*—Continued

MAINE

1928	1929	1930	1931	1932
Motbov Union.[2]	Motbov Union.[2]	Motbov Union.[2]	Motbov Union.[2]	Bar Harbor.
Rumford.[3]	Rumford.[3]	Rumford.[3]	Rumford.[3]	Bucksport.
Sanford.[3]	Sanford.[3]	Sanford.[3]	Sanford.[3]	Cooperative Health Union.[4]
Vassalboro.[3]	Vassalboro.[3]	Vassalboro.[3]	Vassalboro.[3]	Motbov Union.[2]
				Rumford.[3]
				Sanford.[3]

MARYLAND

1928	1929	1930	1931	1932
Allegany.	Allegany.	Allegany.	Anne Arundel.	Allegany.
Baltimore.	Baltimore.	Baltimore.	Allegany.	Anne Arundel.
Calvert.	Calvert.	Calvert.	Baltimore.	Baltimore.
Carroll.	Carroll.	Carroll.	Calvert.	Calvert.
Frederick.	Frederick.	Cecil.	Carroll.	Carroll.
Montgomery.	Harford	Frederick.	Cecil	Cecil.
Prince Georges.	Montgomery.	Harford.	Frederick.	Dorchester.
Talbot.	Prince Georges.	Montgomery	Harford.	Frederick.
	Talbot.	Prince Georges	Kent	Garrett.
		Talbot.	Montgomery.	Harford.
		Wicomico.	Prince Georges	Kent
			Talbot	Montgomery.
			Washington	Prince Georges.
			Wicomico	Queen Annes.
				Talbot.
				Washington.
				Wicomico.
				Worcester.

MASSACHUSETTS

1928	1929	1930	1931	1932
Barnstable.[5]	Barnstable	Barnstable.	Barnstable	Barnstable.
				Nashoba.
				Southern Berkshire.

MICHIGAN

1928	1929	1930	1931	1932
	Oakland.	Genesee.	Alcona [6]	Alcona.[6]
	Saginaw.	Oakland.	Alpena [6]	Alpena [6]
	Wexford.	Saginaw.	Antrim [6]	Antrim.[6]
		Wexford.	Charlevoix [6]	Barry.
			Cheboygan.[6]	Charlevoix.[6]
			Crawford.[6]	Cheboygan.[6]
			Emmet [6]	Crawford.[6]
			Genesee.	Emmet.[6]
			Iosco [6]	Genesee.
			Isabella	Iosco.[6]
			Kalkaska [6]	Isabella
			Kent	Kalkaska.[6]
			Midland.	Kent.
			Missaukee.[6]	Midland.
			Montmorency [6]	Missaukee.[6]
			Oakland.	Montmorency.[6]
			Ogemaw.[6]	Oakland
			Oscoda [6]	Ogemaw.[6]
			Otsego [6]	Oscoda.[6]
			Ottawa.	Otsego [6]
			Presque Isle.[6]	Ottawa.
			Roscommon.[6]	Presque Isle.[6]
			Saginaw.	Roscommon.[6]
			Wexford.	Saginaw.
				Wexford.

[2] Including municipalities of Orono, Milford, Bradley, Veazie, and Old Town.
[3] Town (township) wholly or partly rural.
[4] Including towns of Avon, Chesterville, Phillips, and Strong.
[5] See Reprint No. 1184, p. 34, from Public Health Reports of Oct. 21, 1927.
[6] Included in four districts of four counties each.

Table 1.—*List of counties, townships, or districts in which as of Jan. 1, 1928, 1929, 1930, 1931, and 1932, respectively, rural sections were provided with health service under local whole-time health officers*—Continued

MINNESOTA

1928	1929	1930	1931	1932
St. Louis.	St. Louis.	St. Louis.	St. Louis.	St. Louis.

MISSISSIPPI

1928	1929	1930	1931	1932
Bolivar.	Adams.	Adams.	Adams.	Adams.
Clarke.	Bolivar.	Bolivar.	Bolivar.	Bolivar.
Coahoma.	Clarke.	Clarke	Clarke.	Clarke
Forrest.	Coahoma.	Coahoma.	Coahoma	Coahoma.
Hancock.	Copiah.	Copiah	Copiah.	Copiah.
Harrison.	Forrest.	Forrest.	Forrest.	Forrest.
Hinds.	Hancock	Hancock.	Hancock.	Hancock.
Holmes.	Harrison.	Harrison.	Harrison.	Harrison.
Humphreys.	Hinds.	Hinds.	Hinds.	Hinds
Issaquena.	Holmes.	Holmes.	Holmes.	Holmes.
Jackson.	Humphreys.	Humphreys.	Humphreys	Humphreys.
Jones.	Issaquena.	Issaquena.	Issaquena	Issaquena.
Lamar.	Jackson.	Jackson.	Jackson.	Jackson.
Lee.	Jones	Lamar.	Lamar.	Lamar
Leflore.	Lamar.	Lauderdale.	Lauderdale.	Lauderdale.
Pearl River.	Lauderdale.	Lee	Lee	Lee.
Perry.	Lee.	Leflore	Leflore	Leflore
Sharkey.	Leflore	Lincoln.	Lincoln.	Lincoln.
Sunflower.	Lincoln.	Monroe	Monroe	Monroe
Tishomingo.	Monroe.	Pearl River.	Pearl River	Pearl River.
Union.	Pearl River.	Perry.	Perry.	Perry.
Warren.	Perry.	Sharkey.	Sharkey.	Pike.
Washington.	Sharkey.	Sunflower.	Sunflower	Sharkey
Yazoo.	Sunflower.	Tishomingo.	Tishomingo.	Sunflower.
	Tishomingo	Union	Union.	Tishomingo.
	Union.	Warren.	Warren.	Union.
	Warren.	Washington.	Washington.	Warren
	Washington.	Yazoo.	Yazoo.	Washington.
	Yazoo.			Yazoo.

MISSOURI

1928	1929	1930	1931	1932
Boone.	Boone.	Boone.	Boone.	Boone.
Dunklin.	Dunklin.	Buchanan.	Buchanan.	Buchanan.
Greene.	Greene	Dunklin.	Dunklin.	Dunklin.
Holt.	Jackson.	Greene	Greene.	Greene.
Jackson.	Marion.	Jackson.	Jackson	Jackson.
Marion.	Mississippi	Marion	Marion.	Marion.
Mississippi.	New Madrid.	Mississippi	Miller	Miller.
New Madrid.	Nodaway.	New Madrid	New Madrid.	New Madrid.
Nodaway.	Pemiscot.	Nodaway.	Nodaway	Pemiscot.
Pemiscot.	St. Francois	Pemiscot	Pemiscot	St Louis.
Pettis.	St. Louis.	St. Francois.	Scott	Scott.
Scott.	Scott.	St. Louis.	St. Francois.	
St. Francois.		Scott.	St Louis.	
St. Louis.				

MONTANA

1928	1929	1930	1931	1932
Cascade.	Cascade.	Cascade	Cascade.	Cascade.
Lewis and Clark.	Lewis and Clark.	Gallatin	Gallatin.	Gallatin.
Missoula.	Missoula.	Lewis and Clark.	Lewis and Clark.	Lewis and Clark.
		Missoula.	Missoula.	Missoula.

NEW MEXICO

1928	1929	1930	1931	1932
Bernalillo.	Bernalillo.	Bernalillo.	Bernalillo.	Bernalillo.
Chaves.	Chaves	Chaves.	Dona Ana.	Dona Ana.
Dona Ana.	Dona Ana.	Dona Ana.	Eddy.	Eddy.
Eddy.	Eddy.	Eddy.	Lea.	Santa Fe.
McKinley.	Santa Fe.	McKinley.	McKinley.	Union.
Santa Fe.	Union.	Union.	Santa Fe.	Valencia.
Union.	Valencia.	Valencia.	Union.	
Valencia.			Valencia.	

TABLE 1.—*List of counties, townships, or districts in which as of Jan. 1, 1928, 1929, 1930, 1931, and 1932, respectively, rural sections were provided with health service under local whole-time health officers*—Continued

NEW YORK

1928	1929	1930	1931	1932
Cattaraugus.	Cattaraugus.	Cattaraugus.	Cattaraugus.	Cattaraugus.
	Suffolk	Cortland.	Cortland.	Cortland.
		Suffolk.	Suffolk	Suffolk.
		Westchester	Westchester.	Westchester.

NORTH CAROLINA

1928	1929	1930	1931	1932
Beaufort.	Beaufort.	Beaufort.	Beaufort.	Beaufort.
Bertie	Bertie	Bertie	Bertie	Bladen.
Bladen	Bladen.	Bladen	Bladen.	Buncombe.
Brunswick	Brunswick	Buncombe	Buncombe.	Cabarrus.
Buncombe.	Buncombe	Cabarrus.	Cabarrus.	Columbus.
Cabarrus.	Cabarrus.	Cherokee	Cherokee.	Cumberland.
Carteret.	Columbus.	Columbus.	Columbus.	Davidson.
Columbus.	Craven.	Craven	Craven.	Durham.
Craven.	Cumberland.	Cumberland.	Cumberland.	Edgecombe.
Cumberland.	Davidson	Davidson.	Davidson.	Forsyth.
Davidson.	Durham.	Durham.	Durham.	Franklin.
Durham.	Edgecombe.	Edgecombe.	Edgecombe.	Gaston.
Edgecombe.	Forsyth	Forsyth.	Forsyth.	Granville.
Forsyth.	Gaston.	Gaston.	Franklin.	Guilford.
Granville	Granville	Granville	Gaston.	Halifax.
Guilford.	Guilford.	Guilford	Guilford.	Johnston.
Halifax.	Halifax	Halifax.	Granville.	Lenoir.
Henderson	Henderson.	Henderson	Halifax	Mecklenburg.
Johnston.	Johnston	Johnston	Henderson.	Moore
Lenoir.	Lenoir	Lenoir.	Johnston.	New Hanover.
Mecklenburg.	Mecklenburg.	Mecklenburg.	Lenoir.	Northampton.
Nash.	Moore.	Moore	Mecklenburg.	Pitt.
New Hanover.	Nash	Nash.	Moore.	Randolph.
Northampton.	New Hanover.	New Hanover.	Nash.	Richmond.
Pamlico.	Northampton.	Northampton.	New Hanover.	Robeson.
Pitt.	Pamlico.	Pitt.	Northampton.	Rowan.
Richmond.	Pitt.	Randolph.	Pitt	Rutherford.
Robeson.	Richmond.	Richmond	Randolph	Sampson.
Rowan	Randolph.	Robeson.	Richmond.	Stokes.
Rutherford.	Robeson.	Rowan	Robeson.	Surry.
Sampson.	Rowan.	Rutherford.	Rowan.	Vance.
Surry.	Rutherford	Sampson.	Rutherford.	Wake.
Vance.	Sampson.	Surry.	Sampson.	Wayne.
Wake	Surry.	Vance.	Surry.	Wilkes.
Wayne.	Vance.	Wake.	Vance.	Wilson.
Wilkes.	Wake.	Wayne	Wake.	Yadkin.
Wilson.	Wayne.	Wilkes.	Wayne.	
	Wilkes.	Wilson.	Wilkes.	
	Wilson.		Wilson.	

OHIO

1928	1929	1930	1931	1932
Allen.	Allen.	Allen.	Allen.	Allen.
Ashtabula.	Ashtabula.	Ashtabula	Ashtabula.	Ashtabula.
Belmont.	Belmont.	Belmont.	Belmont.	Belmont.
Butler.	Butler.	Butler	Butler.	Butler.
Clermont.	Clinton.	Clinton.	Clinton.	Clinton.
Clinton.	Columbiana.	Columbiana.	Columbiana.	Columbiana.
Columbiana.	Coshocton.	Coshocton	Coshocton.	Coshocton.
Coshocton.	Crawford.	Crawford.	Crawford.	Crawford.
Crawford.	Cuyahoga.	Cuyahoga.	Cuyahoga.	Cuyahoga.
Cuyahoga.	Darke.	Darke.	Darke.	Darke.
Darke.	Delaware.	Delaware.	Delaware.	Delaware.
Delaware.	Erie	Erie.	Erie.	Erie.
Erie.	Fayette.	Fayette.	Fayette.	Fayette.
Fayette.	Franklin.	Franklin.	Franklin.	Franklin.
Franklin.	Geauga.	Geauga.	Hamilton.	Guernsey.
Geauga.	Hamilton.	Hamilton.	Hancock.	Hamilton.
Hamilton.	Hancock.	Hancock.	Hocking.	Hancock.
Hancock.	Hocking.	Hocking.	Huron.	Hocking.
Hocking.	Huron.	Huron.	Jackson.	Huron.
Huron.	Jefferson.	Jefferson.	Jefferson.	Jackson.
Jefferson.	Lake.	Lake.	Lorain.	Jefferson.
Lake.	Lorain.	Lorain.	Lucas.	Lorain.
Lorain.	Lucas.	Lucas.	Mahoning.	Lucas.

Table 1.—*List of counties, townships, or districts in which as of Jan. 1, 1928, 1929, 1930, 1931, and 1932, respectively, rural sections were provided with health service under local whole-time health officers*—Continued

OHIO—Continued

1928	1929	1930	1931	1932
Lucas.	Mahoning.	Mahoning.	Marion.	Mahoning.
Mahoning.	Marion.	Marion.	Meigs.	Marion.
Marion.	Meigs.	Meigs.	Mercer.	Medina.
Meigs.	Mercer.	Mercer.	Miami.	Meigs.
Mercer.	Miami.	Miami.	Montgomery.	Mercer.
Miami.	Montgomery.	Montgomery.	Morrow	Miami.
Montgomery.	Morrow.	Morrow.	Muskingum.	Montgomery.
Morrow.	Perry.	Perry.	Perry.	Morrow.
Muskingum.	Preble.	Pickaway.	Pickaway.	Perry
Perry.	Richland.	Preble.	Preble.	Pickaway.
Preble.	Ross.	Richland.	Richland.	Preble.
Richland.	Sandusky.	Ross	Ross	Richland.
Ross.	Scioto.	Sandusky.	Sandusky.	Ross
Sandusky.	Seneca.	Scioto.	Scioto.	Scioto.
Scioto.	Shelby.	Seneca.	Seneca.	Seneca.
Seneca.	Stark.	Shelby.	Shelby.	Shelby.
Shelby.	Summit.	Stark.	Stark.	Stark.
Stark.	Trumbull.	Summit.	Summit.	Summit.
Summit.	Tuscarawas.	Trumbull.	Trumbull.	Trumbull.
Trumbull.	Washington.	Tuscarawas.	Tuscarawas.	Tuscarawas.
Tuscarawas.	Wayne.	Washington	Washington.	Washington.
Washington.	Wood.	Wayne	Wayne	Wayne.
Wayne.		Wood	Wood	Wood.
Wood.				

OKLAHOMA

Carter.	Carter.	Carter	Carter.	Carter.
Kay.	Kay.	Le Flore.	Le Flore	Le Flore.
Le Flore.	Le Flore.	McCurtain	McCurtain	McCurtain.
McCurtain	McCurtain.	Muskogee.	Muskogee.	Muskogee.
Muskogee.	Muskogee.	Okmulgee	Okmulgee	Okmulgee.
Okmulgee.	Okmulgee.	Osage.	Ottawa.	Ottawa.
Ottawa	Osage.	Ottawa	Pittsburg	Pittsburg.
Pittsburg.	Ottawa	Pittsburg.	Pottawatomie.	Pottawatomie.
Seminole.	Pittsburg.	Seminole.	Seminole.	Seminole.
	Seminole.			

OREGON

Clackamas.	Clackamas.	Clackamas	Clackamas.	Clackamas.
Coos.	Coos	Coos	Coos.	Coos
Douglas.	Douglas.	Douglas	Douglas.	Douglas.
Jackson.	Jackson.	Jackson.	Jackson	Jackson.
Klamath.	Klamath.	Klamath	Klamath.	Klamath.
Marion.	Marion.	Marion.	Lane.	Lane
Multnomah.	Multnomah.	Multnomah.	Marion	Marion.
			Multnomah	Multnomah.

PENNSYLVANIA

			Allegheny.	Allegheny.
			Bucks.	Bucks
			Luzerne.	Luzerne.

SOUTH CAROLINA

Aiken.	Aiken.	Aiken	Aiken.	Aiken.
Anderson.	Anderson.	Anderson.	Anderson.	Anderson.
Beaufort.	Beaufort.	Beaufort.	Beaufort.	Beaufort.
Charleston.	Berkeley.	Berkeley.	Berkeley.	Berkeley.
Cherokee.	Charleston.	Charleston	Charleston.	Charleston.
Darlington.	Cherokee.	Cherokee.	Cherokee.	Cherokee.
Dillon.	Darlington.	Darlington.	Darlington.	Darlington.
Fairfield.	Dillon.	Dillon.	Dillon.	Dillon.
Georgetown.	Dorchester.	Dorchester.	Dorchester	Dorchester.
Greenville.	Fairfield.	Fairfield.	Fairfield.	Fairfield.
Greenwood.	Georgetown.	Florence.	Florence.	Florence.

Table 1.—*List of counties, townships, or districts in which as of Jan. 1, 1928, 1929, 1930, 1931, and 1932, respectively, rural sections were provided with health service under local whole-time health officers*—Continued

SOUTH CAROLINA—Continued

1928	1929	1930	1931	1932
Horry.	Greenville.	Georgetown.	Georgetown.	Georgetown.
Marion.	Greenwood.	Greenville.	Greenville.	Greenville.
Newberry.	Horry.	Greenwood.	Greenwood.	Greenwood.
Orangeburg.	Marion.	Horry.	Horry.	Horry.
Spartanburg.	Newberry.	Kershaw.	Kershaw.	Kershaw.
	Oconee.	Lexington.	Lexington.	Lexington.
	Orangeburg.	Marion.	Marion.	Marion.
	Richland.	Newberry.	Newberry.	Newberry.
	Spartanburg.	Oconee.	Oconee.	Oconee.
		Orangeburg.	Orangeburg.	Orangeburg.
		Richland.	Richland.	Pickens.
		Spartanburg.	Spartanburg.	Richland.
				Spartanburg.

SOUTH DAKOTA

Pennington.	Pennington.	Pennington.	Pennington.	Pennington.

TENNESSEE

Blount.	Blount.	Bledsoe.	Bledsoe.	Bledsoe [1]
Bradley.	Bradley.	Blount.	Blount.	Blount.
Davidson.	Carter.	Bradley.	Bradley.	Bradley.
Dyer.	Davidson.	Carter.	Carter.	Carter.
Gibson.	Dyer.	Clay.	Clay.	Clay.[2]
Hamilton.	Gibson.	Davidson.	Davidson.	Cumberland.
Lake.	Greene.	Dyer.	Dyer.	Davidson.[2]
Lauderdale.	Hamilton.	Fentress.	Fentress.	Dyer.
Montgomery.	Knox.	Gibson.	Gibson.	Fentress.[2]
Obion.	Lake.	Giles.	Giles.	Gibson.
Roane	Lauderdale.	Greene.	Greene.	Giles.
Rutherford.	Monroe.	Grundy.	Grundy.	Greene.
Sevier	Montgomery.	Hamilton.	Hamilton.	Grundy.[1]
Shelby.	Obion.	Hardeman.	Hardeman.	Hamilton.
Washington.	Roane.	Jackson.	Humphreys.	Hardeman.
Weakley.	Rutherford.	Knox.	Jackson.	Humphreys.
Williamson.	Sevier.	Lake.	Knox.	Jackson.[2]
	Shelby.	Lauderdale.	Lake.	Knox.
	Sullivan.	Lincoln.	Lauderdale.	Lake.
	Washington.	Meigs.	Lewis.	Lauderdale.
	Weakley.	Monroe.	Lincoln.	Lewis.
	Williamson.	Montgomery.	Maury.	Lincoln.
	Wilson.	Obion.	Meigs.	Maury.
		Overton.	Monroe.	Meigs.[2]
		Pickett.	Montgomery.	Monroe.
		Rhea.	Obion.	Montgomery.
		Roane.	Overton.	Obion.
		Rutherford.	Pickett.	Overton.[2]
		Sequatchie.	Rhea.	Pickett.[2]
		Sevier.	Roane.	Rhea.[2]
		Shelby.	Rutherford.	Roane.
		Sullivan.	Sequatchie.	Rutherford.
		Sumner.	Sevier.	Sequatchie.[1]
		Tipton.	Shelby.	Sevier.
		Washington.	Sullivan.	Shelby.
		Weakley.	Sumner.	Sullivan.
		Williamson.	Tipton.	Sumner.
		Wilson.	Unicoi.	Tipton.
			Washington.	Unicoi.
			Weakley.	Washington.
			Williamson.	Weakley.
			Wilson.	Williamson.
				Wilson.

[1] Included in 1 district of 3 counties.
[2] Included in 4 districts of 2 counties each.

TABLE 1.—*List of counties, townships, or districts in which as of Jan. 1, 1928, 1929, 1930, 1931, and 1932, respectively, rural sections were provided with health service under local whole-time health officers*—Continued

TEXAS

1928	1929	1930	1931	1932
Cameron.	Cameron.	Cameron.	Cameron.	Cameron.[2]
Hidalgo.	Hidalgo.	Hidalgo.	Hidalgo.	Cass.
McLennan.	McLennan.	Jefferson.	Jefferson.	Hidalgo.[2]
Tarrant.	Tarrant.	McLennan.	McLennan.	Jefferson.
		Nolan.	Nolan.	McLennan.
		Tarrant.	Potter	Nolan.
			Tarrant.	Potter.
				Starr.[2]
				Willacy.[2]

UTAH

1928	1929	1930	1931	1932
Box Elder.	Box Elder.	Box Elder.	Davis.	Davis.
Davis.	Davis.	Davis.	Utah.	Utah.
Summit.	Utah.	Utah.		
Utah.				
Wasatch.				

VIRGINIA

1928	1929	1930	1931	1932
Accomac.	Accomac.	Accomac.	Accomac	Accomac[3]
Albemarle.	Albemarle.	Albemarle.	Albemarle.	Albemarle.
Arlington.	Arlington.	Arlington.	Amelia.[1]	Amelia[1]
Augusta.	Augusta.	Augusta.	Appomattox.[1]	Appomattox.[1]
Brunswick.	Brunswick.	Brunswick.	Arlington.	Arlington.
Halifax.	Greensville.	Fairfax.	Augusta.	Augusta.
Henrico.	Halifax.	Greensville.	Brunswick.	Brunswick.[3]
Isle of Wight.	Henrico	Halifax.	Buckingham[1]	Buckingham.[1]
Nansemond.	Isle of Wight.	Henrico.	Charlotte[1]	Charlotte[1]
Norfolk.	Nansemond.	Isle of Wight.	Cumberland.[1]	Cumberland.[1]
Northampton.	Norfolk.	Nansemond.	Fairfax.	Fairfax
Princess Anne.	Northampton.	Norfolk.	Greensville.	Greensville.[3]
Rockbridge.	Princess Anne.	Northampton.	Halifax.	Halifax
Southampton.	Rockbridge.	Princess Anne.	Henrico.	Henrico.
	Southampton.	Rockbridge.	Isle of Wight	Isle of Wight.[3]
	Wise.	Southampton.	Lunenburg.[1]	Lunenburg.[1]
		Wise	Nansemond.	Nansemond.[3]
			Norfolk.	Norfolk[3]
			Northampton	Northampton.[3]
			Nottoway.[1]	Nottoway.[1]
			Powhatan.[1]	Pittsylvania.
			Prince Edward[1]	Powhatan.[1]
			Princess Anne.	Prince Edward.[1]
			Rockbridge	Princess Anne.[3]
			Southampton.	Rockbridge.
			Wise.	Southampton.
				Wise.

WASHINGTON

1928	1929	1930	1931	1932
Chelan.	Chelan.	Chelan.	Chelan.	Chelan.
King.	King	Clark	Clark.	Clark.
Snohomish.	Snohomish.	King	King.	King.
Spokane.	Spokane	Snohomish	Snohomish	Snohomish.
Walla Walla.	Walla Walla.	Spokane	Spokane.	Spokane.
Whitman.	Whitman	Walla Walla	Walla Walla	Walla Walla.
Yakima.	Yakima.	Whitman.	Whitman.	Whitman.
		Yakima.	Yakima	Yakima.

[1] Included in 1 district of 9 counties.
[2] Included in 1 district of 4 counties.
[3] Included in 4 districts of 2 counties each.

Table 1.—*List of counties, townships, or districts in which as of Jan. 1, 1928, 1929, 1930, 1931, and 1932, respectively, rural sections were provided with health service under local whole-time health officers*—Continued

WEST VIRGINIA

1928	1929	1930	1931	1932
Berkeley.	Berkeley.	Berkeley.	Berkeley.	Berkeley.
Boone.	Boone.	Boone.	Boone.	Boone.
Brooke.	Brooke.	Brooke	Brooke.	Brooke.
Gilmer.	Fayette.	Fayette.	Fayette.	Doddridge.[1]
Hancock.	Gilmer.	Gilmer.	Gilmer.	Fayette.
Harrison.	Hancock.	Hancock.	Hancock.	Hancock.
Kanawha.	Harrison.	Harrison.	Harrison.	Harrison.
Lewis.	Kanawha.	Kanawha.	Kanawha.	Kanawha.
Logan.	Logan.	Logan.	Logan.	Logan.
Marion.	Marion.	Marion.	Marion.	Marion.
Marshall.	Ohio.	Monongalia.	Marshall.	Marshall.
Ohio.	Preston.	Ohio.	Monongalia.	Monongalia.
Preston.	Raleigh.	Preston.	Ohio.	Ohio.
Wood.	Wood.	Raleigh.	Preston.	Pleasants.[1]
		Wood.	Raleigh.	Preston.
			Wood.	Raleigh.
				Ritchie.[1]
				Tyler.[1]
				Wetzel[1]
				Wood.

WYOMING

1928	1929	1930	1931	1932
Natrona.	Natrona.			

[1] Included in 1 district of 5 counties.

Résumé of Table 1

State	Number of counties Jan. 1					Increase or decrease in—			
	1928	1929	1930	1931	1932	1928	1929	1930	1931
Alabama	33	50	51	54	54	+17	+1	+3	------
Arizona	3	3	3	6	5	------	------	+3	−1
Arkansas	21	24	21	24	30	+3	−3	+3	+6
California	9	11	12	13	14	+2	+1	+1	+1
Colorado	1	1	1	1	1	------	------	------	------
Connecticut	1	1	1	1	1	------	------	------	------
Delaware	[1]3	[1]3	[1]3	3	3	------	------	------	------
Florida	3	3	2	3	2	------	−1	+1	−1
Georgia	27	31	34	30	35	+4	+3	−4	+5
Idaho	------	------	2	1	1	------	+2	−1	------
Illinois	3	4	2	2	1	+1	−2	------	−1
Iowa	------	------	------	2	3	------	------	+2	+1
Kansas	10	10	11	12	10	------	+1	+1	−2
Kentucky	32	39	45	43	81	+7	+6	−2	+38
Louisiana	28	29	31	31	32	+1	+2	------	+1
Maine	4	4	4	4	6	------	------	------	+2
Maryland	8	9	11	14	18	+1	+2	+3	+4
Massachusetts	1	1	1	1	3	------	------	------	+2
Michigan	------	3	4	21	25	+3	+1	+20	+1
Minnesota	1	1	1	1	1	------	------	------	------
Mississippi	24	29	28	28	29	+5	−1	------	+1
Missouri	14	12	13	13	11	−2	+1	------	−2
Montana	3	3	4	4	4	------	+1	------	------
New Mexico	8	7	7	8	6	−1	------	+1	−2
New York	1	2	4	4	4	+1	+2	------	------
North Carolina	37	39	38	39	36	+2	−1	+1	−3
Ohio	47	45	46	46	46	−2	+1	------	------
Oklahoma	9	10	9	9	9	+1	−1	------	------
Oregon	7	7	7	8	8	------	------	+1	------
Pennsylvania	------	------	------	3	3	------	------	+3	------
South Carolina	16	20	23	23	24	+4	+3	------	+1
South Dakota	1	1	1	1	1	------	------	------	------
Tennessee	17	23	38	42	43	+6	+15	+4	+1
Texas	4	4	6	7	9	------	+2	+1	+2
Utah	5	3	3	2	2	−2	------	−1	------
Virginia	14	16	17	26	27	+2	+1	+9	+1
Washington	7	7	8	8	8	------	+1	------	------
West Virginia	14	14	15	16	20	------	+1	+1	+4
Wyoming	1	1	------	------	------	------	−1	------	------
Total	417	470	507	557	616	+53	+37	+50	+59

[1] Information that 3 units had been operating in Delaware on Jan. 1, 1928, 1929, and 1930, was not received until after publication of the report on extent of rural health service on Jan. 1, 1931, Public Health Reports, Sept. 11, 1931, p. 2173.

The accompanying map shows the location of the counties, townships, or districts in the United States in the rural sections of which health service under the direction of local whole-time health officers was in operation on January 1, 1932.

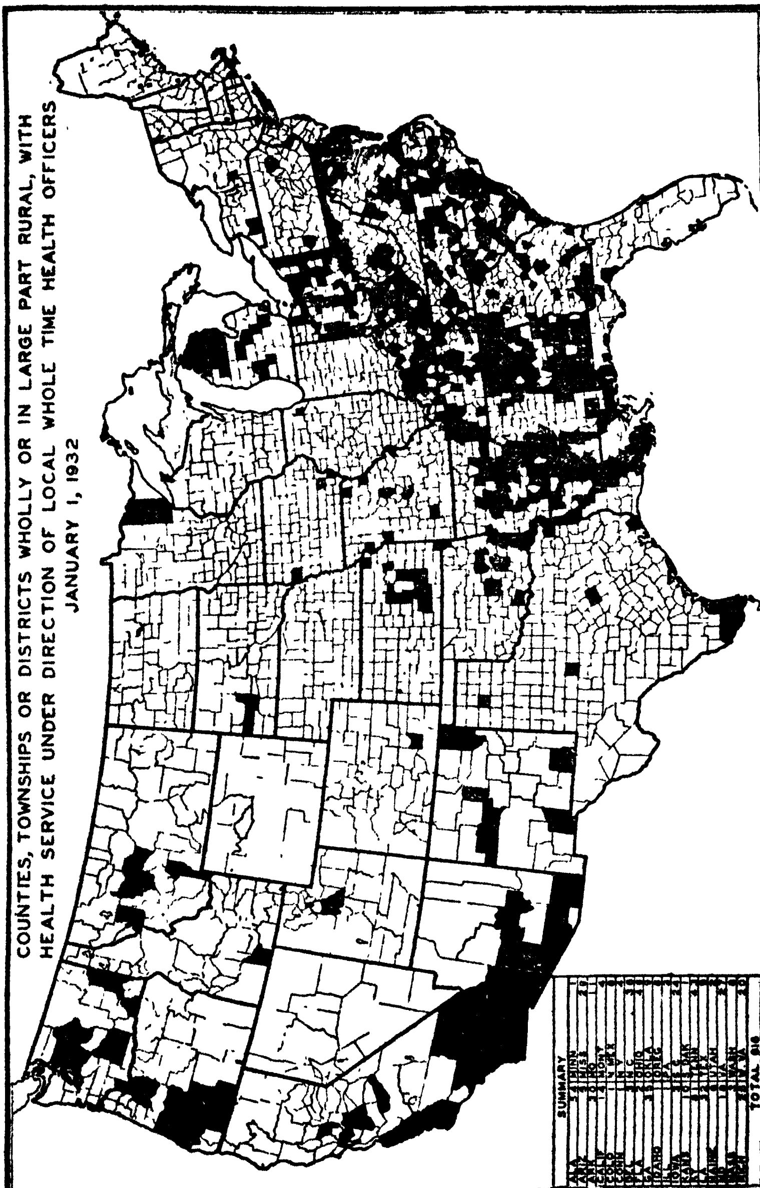

FIGURE 1.—Rural areas having whole-time health officers, 1932

Within the period January 1, 1931, to January 1, 1932, whole-time health service was established in 71 units and was discontinued in 12—a net gain of 59. The largest gain in one State was that of 38 in

Kentucky. Delaware leads in the percentage of rural population under whole-time health service, all of its three counties having been provided with local whole-time health organizations by the State. Of the States in which the local governmental units maintain the health organizations, with or without assistance from the State health department or other sources, Maryland, with 87.5, had the highest percentage of rural population under whole-time health service.

TABLE 2.—*Percentage of rural population having on January 1, 1932, health service under local whole-time health officers*

State	Rural population as of Jan. 1, 1932 (estimated from 1930 census)	Rural population with local health service under direction of whole-time health officers	Percentage of rural population with local health service under direction of whole-time health officers
Alabama	1,912,751	1,637,548	85.6
Arizona	297,510	179,725	60.4
Arkansas	1,473,293	717,607	48.7
California	1,588,618	763,321	48.0
Colorado	520,952	13,771	2.6
Connecticut	480,398	18,199	3.8
Delaware	117,453	117,453	100.0
Florida	724,786	23,168	3.2
Georgia	[1] 2,013,016	592,517	29.4
Idaho	315,985	21,206	6.7
Illinois	[1] 1,994,927	25,015	1.3
Indiana	[1] 1,442,611	0	0.0
Iowa	[1] 1,491,647	49,032	3.3
Kansas	[1] 1,151,165	174,108	15.1
Kentucky	1,821,108	1,295,471	71.1
Louisiana	1,284,743	741,685	57.7
Maine	477,193	47,323	9.9
Maryland	669,703	586,001	87.5
Massachusetts	455,076	67,393	14.8
Michigan	1,559,609	421,875	27.1
Minnesota	[1] 1,306,337	48,313	3.7
Mississippi	1,691,538	717,246	42.4
Missouri	[1] 1,770,248	386,960	21.9
Montana	[1] 356,570	35,139	9.9
Nebraska	891,991	0	0.0
Nevada	[1] 56,594	0	0.0
New Hampshire	197,146	0	0.0
New Jersey	705,697	0	0.0
New Mexico	320,105	87,623	27.4
New York	2,112,333	272,427	12.9
North Carolina	2,410,224	1,251,877	51.9
North Dakota	569,060	0	0.0
Ohio	2,149,069	1,343,097	62.5
Oklahoma	1,588,965	319,986	20.1
Oregon	476,275	224,740	47.2
Pennsylvania	[1] 3,097,139	379,607	12.3
Rhode Island	58,360	0	0.0
South Carolina	[1] 1,367,685	861,180	63.0
South Dakota	566,597	10,141	1.8
Tennessee	[1] 1,720,018	915,231	53.2
Texas	3,483,993	213,941	6.1
Utah	242,909	29,874	12.3
Vermont	[1] 240,845	0	0.0
Virginia	1,636,504	590,007	36.1
Washington	690,973	305,557	44.2
West Virginia	1,262,116	618,296	49.0
Wisconsin	[1] 1,385,163	0	0.0
Wyoming	158,612	0	0.0
Total	54,305,610	16,103,660	29.7

[1] 1930 census; no estimate for Jan. 1, 1932, made.

Of the 616 counties, townships, or districts with health service under local whole-time health officers at the beginning of the present calendar year, 565, or 91.7 per cent, are receiving financial assistance for the support of their health service from one or more of the following agencies: The State board of health, the United States Public Health

STATE	WHOLE-TIME COUNTY OR LOCAL DISTRICT HEALTH UNITS JANUARY 1					PERCENTAGE OF RURAL POPULATION SERVED AS OF JANUARY 1, 1932.
	1928	1929	1930	1931	1932	%
DELAWARE	3	3	3	3	3	1000
MARYLAND	8	9	11	14	18	87.5
ALABAMA	33	50	51	54	54	856
KENTUCKY	32	39	45	43	81	711
S CAROLINA	16	20	23	23	24	630
OHIO	47	45	46	46	46	625
ARIZONA	3	3	3	6	5	604
LOUISIANA	28	29	31	31	32	57.7
TENNESSEE	17	23	38	42	43	532
N CAROLINA	37	39	38	39	36	519
WEST VIRGINIA	14	14	15	16	20	490
ARKANSAS	21	24	21	24	30	487
CALIFORNIA	9	11	12	13	14	480
OREGON	7	7	7	8	8	472
WASHINGTON	7	7	8	8	8	442
MISSISSIPPI	24	29	28	26	29	424
VIRGINIA	14	16	17	26	27	381
GEORGIA	27	31	34	30	35	294
NEW MEXICO	6	7	7	8	8	274
MICHIGAN	0	3	4	24	25	271
MISSOURI	14	12	13	13	11	219
OKLAHOMA	9	10	9	9	9	201
KANSAS	10	10	11	12	10	151
MASSACHUSETTS	1	1	1	1	3	148
NEW YORK	1	2	4	4	4	129
PENNSYLVANIA	0	0	0	3	3	123
UTAH	5	3	3	2	2	12.3
MAINE	4	4	4	4	6	99
MONTANA	3	3	4	4	4	99
IDAHO	0	0	2	1	1	6.7
TEXAS	4	4	6	7	9	61
CONNECTICUT	1	1	1	1	1	36
MINNESOTA	1	1	1	1	1	3.7
IOWA	0	0	0	2	3	33
FLORIDA	3	3	2	3	2	32
COLORADO	1	1	1	1	1	26
S DAKOTA	1	1	1	1	1	16
ILLINOIS	3	4	2	2	1	13
WYOMING	1	1	0	0	0	00
TOTAL	417	470	507	557	616	297

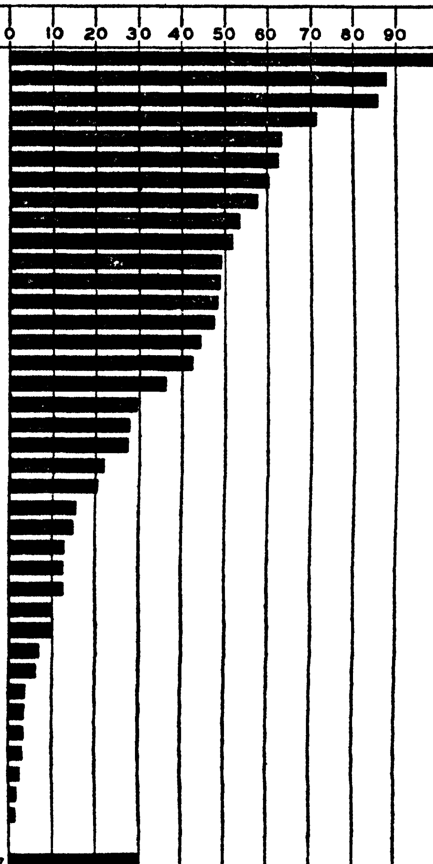

FIGURE 2.—Number of whole-time county health units, by States, 1928-1932, and percentage of rural population served on January 1, 1932

Service, the Rockefeller Foundation, the Rosenwald Fund, Commonwealth Fund, Couzens Fund, and Women's Hospital Fund.

Table 2 presents, by States, the percentage of rural population having health service under the direction of local whole-time health officers at the beginning of 1932. It will be noted that slightly over 70 per cent of our rural population is as yet unprovided with local health service approaching adequacy.

The accompanying chart shows, by States, the number of counties, townships, or districts with health service under the direction of local whole-time health officers as of January 1, 1928, 1929, 1930, 1931, and 1932, and the percentage of the rural population of each State receiving such service on January 1, 1932. Also it shows the total number of counties, townships, or districts in the United States having local whole-time health service, together with the percentage of the rural population of the entire United States served by local whole-time health organizations.

DEATHS DURING WEEK ENDED NOVEMBER 26, 1932

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Nov. 26, 1932	Corresponding week, 1931
Data from 85 large cities of the United States:		
Total deaths	7,702	7,230
Deaths per 1,000 population, annual basis	11.0	10.5
Deaths under 1 year of age	578	530
Deaths under 1 year of age per 1,000 estimated live births [1]	47	40
Deaths per 1,000 population, annual basis, first 45 weeks of year	11.0	11.8
Data from industrial insurance companies:		
Policies in force	69,812,157	74,138,400
Number of death claims	10,950	11,566
Death claims per 1,000 policies in force, annual rate	8.2	8.1
Death claims per 1,000 policies, first 45 weeks of year, annual rate	9.5	9.6

[1] 1932, 81 cities; 1931, 77 cities.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended December 3, 1932, and December 5, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended December 3, 1932, and December 5, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Dec. 3, 1932	Week ended Dec. 5, 1931	Week ended Dec. 3, 1932	Week ended Dec. 5, 1931	Week ended Dec. 3, 1932	Week ended Dec. 5, 1931	Week ended Dec. 3, 1932	Week ended Dec. 5, 1931
New England States:								
Maine	9	19	2	1	4	180	0	0
New Hampshire						5	0	0
Vermont		1				42	0	0
Massachusetts	35	63	4	2	83	237	3	2
Rhode Island	4	2		2	1	236	0	0
Connecticut	9	6	18	12	13	38	0	0
Middle Atlantic States:								
New York	50	118	[1] 17	[1] 21	653	408	9	10
New Jersey	50	34	13	8	242	14	0	1
Pennsylvania	140	128			347	673	3	4
East North Central States:								
Ohio	49	131	37	7	166	26	1	3
Indiana	117	91	247	8	16	14	0	15
Illinois	90	167	73	6	67	39	14	9
Michigan	20	41	2		272	19	0	4
Wisconsin	10	23	25	8	180	42	2	0
West North Central States:								
Minnesota	15	44	1	1	82	16	1	2
Iowa	18	21			5	10	0	3
Missouri	66	84	123	2	12	20	0	0
North Dakota	13	1	1		49		0	0
South Dakota	10	16	1	1		6	1	0
Nebraska	48	36	4	6	3	8	0	0
Kansas	31	65	52		12	35	3	0
South Atlantic States:								
Delaware	4	19				2	0	0
Maryland [2] [3]	16	75	16	6	4	5	1	2
District of Columbia	10	21	5	1	5	2	1	0
Virginia	50				113		1	
West Virginia	40	43	36	29	77	213	1	1
North Carolina	61	140	11	56	58	42	2	2
South Carolina [3]	16	32	543	415	31	31	0	0
Georgia [3]	32	24	297	33	6	4	1	4
Florida [3]	15	8	10		2		0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended December 3, 1932, and December 5, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Dec. 3, 1932	Week ended Dec. 5, 1931	Week ended Dec. 3, 1932	Week ended Dec. 5, 1931	Week ended Dec. 3, 1932	Week ended Dec. 5, 1931	Week ended Dec. 3, 1932	Week ended Dec. 5, 1931
East South Central States:								
Kentucky	75	91	108				3	1
Tennessee	84	75	946	13	3	14	1	4
Alabama	34	60	3,527	22	3	20	1	1
Mississippi	35	46					0	0
West South Central States:								
Arkansas	30	34	204	10	5	24	0	0
Louisiana	34	56	1,183	3	3	1	2	0
Oklahoma [4]	50	114	152	27	2		0	0
Texas	154	216	111	42	44		3	1
Mountain States:								
Montana	1	6			371	126	0	0
Idaho	3	7	19		2		0	0
Wyoming		2	1		5		0	0
Colorado	9	7	1,034		10	6	1	0
New Mexico	5	9	2,750	1	1	5	0	1
Arizona	4	11	688	9	1	2	0	0
Utah [3]	2	1	37	5		1	1	2
Pacific States.								
Washington	6	22	7		3	37	0	4
Oregon	2	4	284	33	41	6	0	0
California	69	109	1,702	69	47	187	3	5
Total	1,625	2,323	14,291	859	3,044	2,796	59	81

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Dec 3, 1932	Week ended Dec 5, 1931	Week ended Dec 3, 1932	Week ended Dec. 5, 1931	Week ended Dec 3, 1932	Week ended Dec. 5, 1931	Week ended Dec 3, 1932	Week ended Dec. 5, 1931
New England States								
Maine	2	1	17	48	0	0	6	8
New Hampshire	0	0	10	2	0	0	0	0
Vermont	0	0	12	5	1	10	0	0
Massachusetts	1	3	277	254	0	0	2	8
Rhode Island	0	0	33	17	0	0	0	0
Connecticut	0	2	73	52	0	89	0	2
Middle Atlantic States								
New York	0	17	603	408	16	10	9	15
New Jersey	1	4	183	94	0	1	5	7
Pennsylvania	4	3	538	421	0	0	35	28
East North Central States.								
Ohio	1	4	506	456	19	14	8	27
Indiana	0	1	142	85	7	10	14	9
Illinois	1	20	389	283	0	12	12	36
Michigan	2	3	211	205	3	13	3	9
Wisconsin	0	3	79	87	2	4	2	4
West North Central States								
Minnesota	1	13	78	64	1	4	1	1
Iowa	0	3	52	44	44	58	2	3
Missouri	0	0	138	71	0	7	3	11
North Dakota	0	0	5	13	0	3	0	1
South Dakota	1	0	19	13	0	15	0	1
Nebraska	1	0	65	42	4	3	0	1
Kansas	0	1	82	70	1	8	5	1
South Atlantic States:								
Delaware	0	0	12	9	0	0	0	0
Maryland [2] [3]	2	2	85	100	0	0	6	10
District of Columbia	0	0	10	16	0	0	0	0
Virginia	0	2	61		0	1	7	
West Virginia	0	0	74	65	0	0	14	40
North Carolina	0	0	111	129	0	2	17	9
South Carolina [3]	0	0	11	11	2	0	4	7
Georgia [3]	0	0	18	32	0	0	2	2
Florida [3]	0	0	10	8	0	0	1	11

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended December 3, 1932, and December 5, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Dec. 3, 1932	Week ended Dec. 5, 1931	Week ended Dec. 3, 1932	Week ended Dec. 5, 1931	Week ended Dec. 3, 1932	Week ended Dec. 5, 1931	Week ended Dec. 3, 1932	Week ended Dec. 5, 1931
East South Central States:								
Kentucky	1	0	91	75	4	3	19	29
Tennessee	1	2	70	41	1	5	14	16
Alabama	0	1	42	52	4	1	7	18
Mississippi	1	0	28	26	1	17	5	10
West South Central States:								
Arkansas	0	0	50	25	0	0	3	10
Louisiana	0	0	18	23	3	4	5	20
Oklahoma [4]	0	0	30	28	0	1	7	28
Texas	2	1	81	96	13	8	15	14
Mountain States:								
Montana	0	0	13	34	0	3	4	8
Idaho	0	0	0	2	4	3	3	0
Wyoming	0	0	8	11	0	1	0	1
Colorado	0	1	65	42	0	10	3	3
New Mexico	0	0	34	9	0	0	2	6
Arizona	0	1	6	8	0	0	0	0
Utah [2]	0	0	4	14	0	0	0	0
Pacific States:								
Washington	3	3	36	44	3	16	1	9
Oregon	0	0	26	13	4	15	1	1
California	3	5	152	127	2	16	8	6
Total	28	96	4,658	3,769	139	317	255	419

[1] New York City only.
[2] Week ended Friday.
[3] Typhus fever, week ended Dec. 3, 1932, 7 cases: 1 case in Maryland, 1 case in South Carolina, 3 cases in Georgia, and 2 cases in Florida.
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa, and for 1931 are exclusive of Tulsa only.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week:

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
September, 1932										
Hawaii Territory		19	95				3		0	4
Puerto Rico		38	2,070	2,863	74		1		0	10
October, 1932										
Minnesota	3	105	3		292		17	214	1	33
Mississippi	8	217	2,007	8,968	16	310	3	158	2	33
Puerto Rico		64	2,181	5,233	319	3	0		0	18
Wisconsin	1	56	110		325		8	198	16	14
November, 1932										
Connecticut	3	22	39	1	32		0	248	0	6
Iowa	8	72	5		9		2	152	68	2
Nebraska	1	119	1		4		4	153	10	8
Tennessee	6	311	520	82	11	6	10	280	14	70

September, 1932

	Cases
Chicken pox:	
Puerto Rico	20
Dysentery:	
Puerto Rico	41
Filariasis:	
Puerto Rico	5
Hookworm disease:	
Hawaii Territory	19
Leprosy:	
Hawaii Territory	8
Mumps:	
Puerto Rico	10
Ophthalmia neonatorum:	
Puerto Rico	8
Plague:	
Hawaii Territory	
Paratyphoid fever:	
Hawaii Territory	1
Puerperal septicemia:	
Puerto Rico	9
Tetanus:	
Hawaii Territory	5
Puerto Rico	2

	Cases
Tetanus, infantile:	
Puerto Rico	40
Trachoma:	
Puerto Rico	5
Whooping cough:	
Puerto Rico	114
Yaws:	
Puerto Rico	9

October, 1932

	Cases
Chicken pox:	
Minnesota	351
Mississippi	272
Puerto Rico	60
Wisconsin	829
Colibacillosis:	
Puerto Rico	1
Dengue:	
Mississippi	3
Dysentery:	
Minnesota	1
Mississippi (amebic)	46
Puerto Rico	506
Filariasis.	
Puerto Rico	5
German measles:	
Wisconsin	11
Hookworm disease:	
Mississippi	262
Impetigo contagiosa:	
Puerto Rico	2
Mumps:	
Mississippi	73
Puerto Rico	43
Wisconsin	104
Ophthalmia neonatorum:	
Mississippi	3
Puerto Rico	9
Paratyphoid fever:	
Puerto Rico	2
Psittacosis:	
Minnesota	6
Puerperal septicemia:	
Mississippi	15
Puerto Rico	8
Rabies in animals:	
Mississippi	6
Septic sore throat:	
Minnesota	2
Tetanus:	
Puerto Rico	18
Tetanus, infantile:	
Puerto Rico	43
Trachoma:	
Mississippi	5
Wisconsin	44
Tularæmia:	
Minnesota	4
Wisconsin	5
Undulant fever:	
Minnesota	3
Mississippi	1
Wisconsin	4
Whooping cough:	
Minnesota	117
Mississippi	339
Puerto Rico	157
Wisconsin	214

November, 1932

	Cases
Chicken pox:	
Connecticut	335
Iowa	498
Nebraska	218
Tennessee	190
Dysentery:	
Tennessee	3
German measles:	
Connecticut	1
Iowa	1
Tennessee	7
Impetigo contagiosa:	
Iowa	9
Tennessee	3
Lead poisoning:	
Connecticut	5
Lethargic encephalitis:	
Connecticut	2
Iowa	1
Mumps:	
Connecticut	289
Iowa	82
Nebraska	28
Tennessee	41
Puerperal septicemia:	
Tennessee	1
Rabies in animals:	
Connecticut	4
Tennessee	19
Scabies:	
Tennessee	4
Septic sore throat:	
Connecticut	4
Iowa	1
Nebraska	1
Tennessee	5
Trachoma:	
Tennessee	27
Trichinosis:	
Connecticut	1
Tularaemia:	
Tennessee	1
Undulant fever:	
Connecticut	8
Iowa	4
Tennessee	2
Vincent's angina:	
Tennessee	2
Whooping cough:	
Connecticut	290
Iowa	47
Nebraska	53
Tennessee	126

WEEKLY REPORTS FROM CITIES

City reports for week ended November 26, 1932

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0		0	0	0	4	0	0	0	1	21
New Hampshire:											
Concord	0		0	0	1	0	0	0	0	0	10
Nashua	0		0	0	0	0	0	0	0	0	
Vermont:											
Barre	0		0	0	0	0	0	0	0	0	2
Burlington	0		0	0	0	0	0	0	0	0	9
Massachusetts:											
Boston	14	1	1	27	3	46	0	7	1	47	216
Fall River	0		0	1	0	4	0	0	1	2	21
Springfield	1		0	0	2	6	0	1	0	2	42
Worcester	7		0	0	1	12	0	0	0	13	75
Rhode Island:											
Pawtucket	0		0	0	1	0	0	0	0	0	11
Providence	2		0	0	5	10	0	1	0	9	47
Connecticut:											
Bridgeport	0	1	0	5	3	5	0	0	0	0	32
Hartford	4	1	0	1	2	7	0	1	0	0	35
New Haven	0	1	0	0	5	1	0	0	0	6	45
New York:											
Buffalo	3		1	2	14	38	0	8	0	35	121
New York	53	9	7	152	121	135	0	49	1	106	1,314
Rochester	3		0	0	4	19	0	0	0	8	65
Syracuse	1		0	1	4	13	0	1	0	6	50
New Jersey:											
Camden	6	1	1	0	2	6	0	0	0	0	31
Newark	3	3	1	25	4	7	0	4	0	7	75
Trenton	0	1	0	0	1	0	0	1	0	10	27

City reports for week ended November 26, 1932—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Pennsylvania:											
Philadelphia	3	5	3	4	19	88	0	17	1	2	348
Pittsburgh	11	2	3	2	17	33	0	9	1	12	148
Reading	1		0	4	2	9	0	1	0	1	29
Scranton	3			4		11	0		0	4	
Ohio:											
Cincinnati	0	1	1	0	8	13	0	4	0	7	117
Cleveland	10	119	1	4	16	84	0	10	0	15	188
Columbus	4	1	1	85	4	19	0	3	0	0	68
Toledo	3		0	0	5	26	0	3	0	0	51
Indiana.											
Fort Wayne	10		0	0	2	0	0	7	0	0	
Indianapolis	5		0	3	3	5	0	5	0	2	
South Bend	0		0	0	3	6	0	2	0	2	16
Terre Haute	1		0	1	4	0	0	1	0	0	30
Illinois.											
Chicago	15	17	8	46	56	157	0	39	1	34	687
Springfield	4	1	0		2	12	0	1	0	0	19
Michigan:											
Detroit	7	2	2	19	19	52	0	20	1	77	236
Flint	1	1	0	0	1	3	0	2	0	1	16
Grand Rapids	0		2	1	4	3	0	0	0	12	24
Wisconsin:											
Kenosha	0		0	0	0	3	0	0	0	2	2
Madison	0			0		1	0		3	5	
Milwaukee	0		0	4	2	16	0	4	0	20	78
Racine	2		0	1	0	0	0	0	0	1	5
Superior	0		2	0	0	2	0	1	0	1	16
Minnesota.											
Duluth	0		0	0	1	6	0	0	0	2	19
Minneapolis	4		0	7	12	13	0	2	1	3	104
St. Paul	0		0	3	2	17	0	2	0	19	57
Iowa:											
Des Moines	4			0		3	0		0	0	44
Sioux City	4			3		3	0		0	1	1
Waterloo	0			1		0	0		1	0	
Missouri:											
Kansas City	2	1	1	10	7	11	0	2	2	3	110
St. Joseph	4		0	0	2	1	0	0	0	1	15
St. Louis	20		1	2	6	16	0	18	1	1	237
North Dakota:											
Fargo	0		0	0	2	1	0	0	0	0	3
Grand Forks	0		0	16	0	0	0	0	0	0	
South Dakota:											
Aberdeen	0		0	3	0	0	0	0	0	0	
Nebraska:											
Omaha	12		0	0	4	13	2	1	0	0	58
Kansas:											
Topeka	1		2	0	5	1	0	0	0	0	40
Wichita	0		0	0	1	3	0	1	0	4	29
Delaware:											
Wilmington	0		0	1	3	0	0	0	0	0	25
Maryland:											
Baltimore	0	14	2	1	20	39	0	11	0	22	208
Cumberland	0		0	0	1	2	0	0	0	0	15
Frederick	0		0	0	0	3	0	0	0	0	4
District of Columbia.											
Washington	4	4	3	0	5	16	0	7	1	4	112
Virginia:											
Lynchburg	2		0	2	1	5	0	0	0	2	12
Norfolk	2		0	0	2	2	0	3	0	0	23
Richmond	5		1	0	1	6	0	2	0	0	49
Roanoke	3		0	0	3	3	0	1	1	0	11
West Virginia:											
Charleston	0	1	0	0	4	4	0	0	1	2	25
Huntington	2			8		0	0		1	0	
Wheeling	0		0	51	2	4	0	0	0	4	20
North Carolina:											
Raleigh	1		0	1	2	5	0	1	0	0	7
Wilmington	0		0	0	1	4	0	1	1	0	9
Winston-Salem	0		0	1	2	5	0	0	0	0	

City reports for week ended November 26, 1932—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
South Carolina:											
Charleston	1	19	2	0	1	0	0	1	1	0	18
Columbia	1	-------	0	0	2	0	0	7	0	0	37
Greenville	1	-------	-------	0	-------	1	0	-------	0	0	-------
Georgia:											
Atlanta	12	20	1	0	0	2	0	2	2	1	77
Brunswick	0	-------	0	0	0	0	0	0	0	0	3
Savannah	4	4	1	0	2	1	0	2	0	0	40
Florida:											
Miami	2	-------	0	0	1	0	0	2	0	0	26
Tampa	4	-------	0	0	2	0	0	2	0	0	28
Kentucky:											
Lexington	0	-------	0	1	2	1	0	0	0	0	15
Louisville	0	9	0	0	10	9	0	4	0	2	83
Tennessee:											
Memphis	16	-------	0	-------	5	6	0	4	2	0	66
Nashville	4	-------	1	0	6	3	0	2	0	0	43
Alabama:											
Birmingham	6	53	2	1	1	7	0	3	3	1	46
Mobile	0	156	1	0	4	1	0	6	0	0	39
Montgomery	1	22	-------	0	-------	0	0	-------	0	0	-------
Arkansas:											
Fort Smith	2	-------	-------	1	0	0	0	-------	0	0	-------
Little Rock	2	-------	0	0	5	3	0	1	0	0	7
Louisiana:											
New Orleans	10	75	32	0	20	7	0	9	0	3	211
Shreveport	0	-------	0	0	6	1	0	3	0	0	31
Oklahoma:											
Muskogee	0	-------	-------	0	-------	2	1	-------	0	0	-------
Tulsa	3	-------	0	1	0	3	0	0	0	1	-------
Texas:											
Dallas	20	3	3	0	2	13	0	3	4	1	53
Fort Worth	4	-------	0	1	3	14	1	2	1	0	43
Galveston	1	-------	0	0	0	0	0	0	0	0	15
Houston	9	-------	4	0	18	3	0	6	0	0	93
San Antonio	6	-------	0	1	8	0	0	6	0	0	70
Montana:											
Billings	0	-------	0	0	0	1	0	0	0	0	7
Great Falls	0	-------	1	92	1	2	0	0	0	0	7
Helena	0	-------	0	1	0	0	0	0	0	0	5
Missoula	0	-------	0	0	0	0	0	0	0	0	2
Idaho:											
Boise	0	-------	0	5	1	1	2	0	0	0	7
Colorado:											
Denver	2	-------	0	5	11	16	0	6	0	1	84
Pueblo	0	-------	0	0	0	0	0	0	0	0	6
New Mexico:											
Albuquerque	2	4	0	0	0	2	0	4	0	0	9
Utah:											
Salt Lake City	0	-------	2	0	5	8	0	0	0	0	47
Nevada:											
Reno	0	-------	0	0	1	0	0	0	0	0	3
Washington:											
Seattle	3	-------	-------	0	-------	7	1	-------	1	2	-------
Spokane	0	-------	-------	0	-------	3	0	-------	0	0	-------
Tacoma	0	-------	0	1	2	3	0	1	0	0	28
Oregon:											
Portland	1	-------	0	1	2	6	0	1	0	0	54
Salem	0	3	-------	4	-------	0	0	-------	0	0	-------
California:											
Los Angeles	26	435	4	24	27	55	0	18	1	25	202
Sacramento	0	63	2	0	6	3	0	0	0	0	30
San Francisco	8	76	1	2	11	4	0	3	2	44	157

City reports for week ended November 26, 1932—Continued

State and city	Meningococcus meningitis		Polio-myelitis cases
	Cases	Deaths	
Massachusetts:			
Boston	1	1	0
Springfield	0	1	0
Rhode Island:			
Providence	0	1	0
New York:			
Buffalo	1	1	0
New York	1	0	3
New Jersey:			
Trenton	0	0	1
Pennsylvania:			
Philadelphia	0	0	3
Indiana			
Indianapolis	1	1	0
South Bend	0	0	1
Illinois			
Chicago	11	5	1
Michigan:			
Detroit	0	1	0
Missouri.			
St. Louis	1	1	0
Maryland			
Baltimore	0	0	1
Virginia			
Roanoke	1	0	0
Florida			
Miami	0	0	1
Texas			
Dallas	1	0	0
Houston	1	0	0
Colorado			
Denver	0	1	0
Utah			
Salt Lake City	1	0	0
Oregon			
Salem	0	0	1
California			
Los Angeles	0	0	1
San Francisco	1	1	0

Lethargic encephalitis.—Cases. Providence, 1; New York, 3; Chicago, 1; Detroit, 2.

Pellagra.—Cases: Boston, 1, Wilmington, N. C., 1; Charleston, S. C., 1; Atlanta, 1; Savannah, 2; Memphis, 1.

Typhus fever—Cases: New York, 1; Savannah, 1; Miami, 1; Tampa, 1; Mobile, 1

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended November 19, 1932.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases for the week ended November 19, 1932, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis			1						1
Chicken pox	40		132	328	89	8	10	102	704
Diphtheria		15	31	52	11		3		112
Dysentery						1			1
Erysipelas			3	3	2		1	1	10
Influenza	12			7	1			1, 131	1, 151
Measles		9	74	277	5	1	8	10	384
Mumps				86	4			3	93
Pneumonia	1			7		2		7	17
Poliomyelitis			9	4	1		1		15
Scarlet fever	3	4	47	54	16	16	3	14	157
Trachoma								2	2
Tuberculosis	2	5	34	36	7	20	2	12	118
Typhoid fever		3	9	10	5	6	1	1	35
Undulant fever				6					6
Whooping cough	1		120	114	26	6		43	310

ITALY

Communicable diseases—Four weeks ended July 24, 1932.—During the four weeks ended July 24, 1932, cases of certain communicable diseases were reported in Italy, as follows:

Disease	June 27-July 3		July 4-10		July 11-17		July 18-24	
	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected
Anthrax	32	27	22	19	39	33	41	30
Cerebrospinal meningitis	11	10	10	9	10	7	8	8
Chicken pox	191	104	145	89	133	84	100	70
Diphtheria and croup	288	167	274	149	275	146	230	129
Dysentery	15	13	21	10	14	11	16	10
Lethargic encephalitis	3	3	4	3	2	2	1	1
Measles	1, 441	313	1, 002	250	1, 064	286	779	234
Poliomyelitis	17	15	26	21	21	17	25	20
Rabies					1	1		
Scarlet fever	325	119	271	110	277	126	235	99
Typhoid fever	344	210	421	193	470	244	576	290

PANAMA CANAL ZONE

Communicable diseases—October, 1932.—During the month of October, 1932, certain communicable diseases, including imported cases, were reported in the Panama Canal Zone and terminal cities as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Chicken pox	22		Mumps	1	
Diphtheria	7		Pneumonia		28
Dysentery (bacillary)	3	2	Tuberculosis		26
Leprosy	3	1	Typhus fever	1	
Malaria	126	6	Whooping cough	8	
Measles	23	2			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of the quarantinable diseases appeared in the Public Health Reports for November 25, 1932, pp. 2231-2244. A similar cumulative table will appear in the Public Health Reports to be issued December 30, 1932, and thereafter, at least for the time being, in the issue published on the last Friday of each month.)

Cholera

India—Calcutta.—During the two weeks ended November 19, 1932, 43 cases of cholera with 9 deaths were reported at Calcutta, India.

Plague

Syria—Beirut.—During the two weeks ended November 26, 1932, 13 cases of plague were reported at Beirut, Syria.

Typhus Fever

Chile.—Under date of November 16, 1932, four cases of typhus fever were reported in Santiago, Chile, and a number of cases in towns in southern Chile, including the port of Parral.

Yellow Fever

French West Africa—Guinea.—Three fatal cases of yellow fever were reported at Kouroussa, French Guinea, November 18–25, 1932.

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UNITED STATES TREASURY DEPARTMENT

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of public health.

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CONTENTS

PUBLIC HEALTH REPORTS

VOL. 47 DECEMBER 23, 1932 NO. 52

CURRENT PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES[1]

November 6–December 3, 1932

The prevalence of certain important communicable diseases, as indicated by weekly telegraphic reports from State health departments to the United States Public Health Service, is summarized in this report. The underlying statistical data are published weekly in the Public Health Reports, under the section entitled "Prevalence of Disease."

Influenza.—In the area compared, consisting of 38 States, the District of Columbia, and New York City, 24,659 cases of influenza were reported during the four weeks ended December 3, as compared with 4,651 and 2,593 for the two preceding 4-week periods. During corresponding 4-week periods of 1931, 1930, and 1929, 3,584, 4,010, and 4,930 cases respectively, were reported.

The rather sharp rise in cases of influenza is best shown by weekly reports, which are given in the accompanying table and carried one week later than the period included in the above. In this last week (ended December 10) 24,953 cases were reported, or slightly more than the number reported during all four preceding weeks. The table shows comparative data for the 38 States, District of Columbia, and New York City for three former years and for each geographic area for one preceding year.

[1] From the Office of Statistical Investigations, U. S. Public Health Service. The numbers of States included for the various diseases are as follows: Typhoid fever, 47; poliomyelitis, 48; meningococcus meningitis, 48; smallpox, 48; measles, 45; diphtheria, 47; scarlet fever, 47; influenza, 39 States and New York City. The District of Columbia is counted as a State in these reports.

Number of cases of influenza reported by weeks, 1932 and preceding years

Geographic area and years	Week ended—												
	Dec. 10	Dec. 3	Nov. 26	Nov. 19	Nov. 12	Nov. 5	Oct. 29	Oct. 22	Oct. 15	Oct. 8	Oct. 1	Sept. 24	Sept. 17
38 States, District of Columbia, and New York City:													
1932	24, 953	13, 925	6, 154	2, 950	1, 630	1, 847	1, 097	1, 281	926	863	894	689	497
1931	987	851	819	868	1, 046	678	608	487	460	418	323	504	438
1930	1, 175	1, 098	998	1, 004	910	853	673	569	484	383	329	303	359
1929	1, 800	1, 244	1, 316	1, 296	1, 074	1, 016	844	847	717	593	516	435	403
New England:													
1932	8	24	13	8	3	8	4	5	3	14	4	3	9
1931	11	17	3	18	8	10	13	17	14	6	8	4	6
Middle Atlantic:													
1932	57	30	23	47	21	15	26	36	24	22	17	11	10
1931	22	29	27	18	22	10	28	13	15	6	15	0	8
East North Central:													
1932	461	137	87	79	159	56	142	67	117	43	28	23	37
1931	125	21	52	25	52	35	38	25	33	85	16	286	169
West North Central:													
1932	170	182	11	10	2	4	8	3	15	8	4	5	14
1931	8	10	21	7	322	28	4	5	6	4	1	3	2
South Atlantic:													
1932	3, 293	907	544	530	426	410	407	400	390	318	232	250	173
1931	530	540	544	569	461	404	380	315	243	193	224	142	167
East South Central:													
1932	8, 568	4, 473	2, 109	475	77	75	53	60	45	29	25	15	29
1931	58	35	50	73	60	40	39	16	11	5	13	3	15
West South Central:													
1932	9, 238	1, 650	831	149	171	89	125	129	106	109	84	74	55
1931	99	82	41	46	36	59	34	29	22	17	4	14	22
Mountain:													
1932	1, 131	4, 529	702	667	226	300	82	73	9	13	16	0	14
1931	11	15	15	12	9	4	6	8	16	7	9	8	10
Pacific:													
1932	2, 027	1, 993	1, 834	985	545	390	250	506	217	307	184	258	156
1931	123	102	66	100	76	88	66	59	100	95	33	38	39

The sharpest rises and the largest numbers of cases reported are in the South and West. In the South Atlantic group, South Carolina and Georgia show the greatest rises. Every State in the East and West South Central and in the Pacific groups shows large numbers of cases and sharp rises over preceding weeks and over corresponding weeks of 1931. The East and West North Central States both show some rise, but the numbers reported are small except in Ohio, Indiana, and Illinois. Up to December 10 there is little indication of any rise in the Middle Atlantic States and no suggestion of a rise in the New England States.

In all geographic groups, except the Mountain and Pacific, more cases were reported in the week ended December 10 than in any prior week this year. In each of the Mountain and Pacific States (except Montana, Wyoming, and Oregon) fewer cases were reported for the week ended December 10 than for the preceding week, indicating that in the Central and Southern tier of these Western States the peak of the epidemic may have already been passed, at least so far as cases are concerned.

The only available mortality data are from the weekly health index of the Bureau of the Census, which indicates exceptionally higher death rates for Denver, New Orleans, and Pittsburgh, and slightly

higher rates for many cities. For the 85 cities as a whole, the death rate from all causes for the week ended December 10 was 12.3 per 1,000, as compared to 11.2 11.8 and 13.3 in 1931, 1930, and 1929, respectively. Although this figure is below the mortality for the corresponding week of 1929 and not materially above that of 1930, the rates for the weeks ended December 3 and December 10 (12.0 and 12.3) represent a definite increase over the low level of mortality that has prevailed during 1932.

Measles.—The number of cases of measles (8,598) reported for the country as a whole for the current 4-week period very closely approximated the figure for the same period last year. It was about 850 more than occurred in the corresponding period in 1930 and 850 less than were reported in 1929.

A comparison of geographic areas shows that fewer cases were reported from the States along the Atlantic Coast and in the South Central areas than occurred during the same period last year, but in the East North Central section the number for the current period was 2.3 times the number last year; in the West North Central States the reported number of cases was 1.7 times the number last year, and in the Mountain and Pacific areas the number for the current period was three times that for last year.

Poliomyelitis.—The total number of cases of poliomyelitis reported for the four weeks ended December 3 was 177. This number is only about 28 per cent of that reported for the corresponding period of last year and 24 per cent of the number in 1930. The current incidence represented a 13 per cent decrease from the figure for the same period in the more normal year of 1929. Each geographic area shared in this favorable situation except the East South Central. In that section there were only 19 cases, but that represented a 33 per cent excess over the number reported for this period last year.

Smallpox.—In relation to recent years the smallpox situation during the current 4-week period was very favorable. The number of cases totaled 430, as against 1,124, 1,467, and 3,717 for the corresponding period in the years 1931, 1930, and 1929, respectively. Each geographic area reported a decrease from last year's figure for the same period. The decreases ranged from 22 per cent in the West South Central area to 75 per cent in the West North Central area.

Meningococcus meningitis.—The number of cases of meningococcus meningitis rose from 146 for the preceding 4-week period to 221 for the current period. For the country as a whole and in all geographic areas except the East North Central, the incidence was the lowest for this period in the last four years. In the East North Central States, Illinois seemed to be responsible for the excess over last year. The number of reported cases in Illinois rose from 19 for the preceding 4-week period to 46 for the current period.

Typhoid fever.—The incidence of typhoid fever dropped about 50 per cent during the four weeks ended December 3. In relation to recent years the number of cases (1,125) was the lowest for this period in the last four years. A comparison of geographic areas shows that the situation in each area except the South Atlantic was similar to to that described for the country as a whole. In the South Atlantic States the incidence was only about 70 per cent of the incidence for the same period in each of the years 1931 and 1930, and was about 10 per cent in excess of 1929.

Scarlet fever.—The reported incidence (16,938 cases) of scarlet fever for the current period was about 10 per cent in excess of that for the corresponding period last year and approximately 11 per cent above the figures for 1930 and 1929. Significant increases over last year were reported from the Middle Atlantic States and the areas around the Great Lakes. In other areas the number of cases either approximated that of last year or fell slightly below.

Diphtheria.—The incidence of diphtheria continued to be the lowest in recent years. For the four weeks ended December 3 the number of cases totaled 6,770 as against 9,357, 7,031, and 9,405 for the corresponding period in the years 1931, 1930, and 1929. Each geographic area shared in the favorable situation. In the East and West South Central and the Mountain and Pacific areas, where the incidence during the current year has been considerably in excess of that of last year, the number of cases averaged about 72 per cent of last year's figure for the same period.

Mortality, all causes.—Deaths from all causes in large cities, as reported by the Bureau of the Census, rose from 10.3 for the preceding 4-week period to 11.1 for the four weeks ended December 3. For the first time during the current year the death rate exceeded that for a corresponding period last year. For this period in 1931, 1930, and 1929 the rate was 10.6, 12.3, and 11.7, respectively.

PUBLIC HEALTH ORGANIZATION AND ADMINISTRATION IN NAPLES, ITALY

By J. G. Townsend, *Surgeon*, and Enrico Buonocore, *Acting Assistant Surgeon, United States Public Health Service*

GENERAL AND METEOROLOGICAL

The city of Naples, the seat of the Province of Naples, Italy, is situated on the Bay of Naples in north latitude 40° 51′ 45.7″, and west longitude 2.58′ 6″. It is elliptical in shape, extending partly around the bay, and is bounded inland by high hills.

The census of January, 1930, credited the city of Naples with 975,603 persons, and the census of December, 1928, gave 2,197,818

to the Province of Naples. It has been estimated that the Province increases in population about 100,000 every 2 years.

The climate is mild throughout the year, with an even mean temperature of about 60° F. The thermometer seldom reaches the freezing point, and the warmer stage rarely exceeds 86° F. The average relative humidity is about 75.2 per cent. Prevailing winds are southerly and southeasterly from October to March. These winds, sometimes known as "scirocco," blowing from Africa, bring rain and a high humidity. From April to September, however, the dominating winds are southeasterly and northerly. The rainfall is more predominant during the fall and winter months. The average monthly precipitation is about 80 millimeters, varying from about 125 millimeters in October to 19 millimeters in July. During an average year there are about 113 rainy days. The average barometer altitude varies from 26.8 to 28.6 millimeters. These meteorological observations have been gathered from statistics which have been kept in this location since 1841, and are more or less constant from year to year. Due to its location and the favorable meteorological conditions, the climate of Naples is excellent and a decided factor in the promotion of public health.

EARLY PUBLIC-HEALTH MEASURES

Comparatively little is known of public-health activities from the Greek-Roman period ((?) B. C.–476 A. D.) to the end of the rule of the "Ducatus" (1140 A. D.), when the Neapolitan rulers were elected by the people. It is probable that the old Roman laws were followed. These laws were general in character, having to do with the collection of refuse, the cleansing of the streets, supervision of the water supply, providing for a proper disposal of sewage, control of food supplies with reference to quantity, quality, and price, and the hygiene of the home.

Following the Norman conquests (1140 A. D.), measures were first taken actually to promote public health through responsible local boards. Two boards were elected by the people in each section of the city, with functions as follows:

1. "Tribunal of walls, water, streets, and sewers," having to do with fortifications, water supplies, the paving of streets, and the maintenance of sewers.
2. "Tribunal of health." This body, consisting of 33 members, including three physicians, besides the supervisor of the board appointed by the King, did what at that time was thought best in preventing the introduction of diseases (especially plague) into the Kingdom, and exercised general supervision over the port; for it was realized that in some way plague was connected with shipping.

Grains and cereals were not thought to be carriers of the infection; but wools, silks, fabrics, etc., were so considered and were washed or exposed to the sun or fumigated by smoke from burning herbs. Occasionally sulphur was burned to render them harmless. Certificates of health (Cartella di Sanita), which indicated the sanitary conditions existing at the port of departure, were given to all ships clearing from any ports in the Province to other ports. Apparently this board had little delegated authority; for all control measures were recommended to the King, who ordered the necessary action taken.

These two tribunals existed through the reigns of the various rulers and through the first Bourbon period (1734–1798) to the time of the Neapolitan era, when Ferdinand IV of Bourbon abolished them in 1800. The tribunal of health, however, was changed to the "tribunal of general health" by the Spanish king during the reign of the Viceroys in 1656, when Naples was visited by a terrible epidemic of bubonic plague, causing almost 250,000 deaths in a population of 500,000. At that time the jurisdiction of the Tribunal was extended to include all Provinces of the Kingdom as well as the ports; and the medical faculty of the School of Naples was requested to act in an advisory capacity. The ever-prevailing fear of plague was responsible for the first quarantine law in 1751, when all previous sanitary edicts were unified and provision was made for strict supervision over the loading of goods and clinical observation of passengers and crews, with actual quarantine of 40 days (or more) in real or suspected cases of plague. The law of 1751 greatly simplified procedures and amplified the authority of the health tribunal. In 1771 this law was again published and emphasized, but with no substantial changes.

From the time of the Normans to the Bourbons, the ruling monarchs, through their executive powers, were in reality the guardians of the public health, as the literature shows. All the early kings of Naples had their own court physician (proto medicus regni), who was also the chairman of the board of medical examiners for graduates desiring to practice medicine, and who exercised some control over the sale of drugs by pharmacies. Undoubtedly this physician advised the King in matters of public health.

One of the most important advances in public health and medical thought of that period was the establishment by Frederic II, in 1224, of the "School of Naples," with a medical curriculum. The School of Salerno had been established 400 years previously. The medical course required five years of study, with three years of premedical study in the "logic sciences" (philosophy). Degrees were confirmed after examination before a medical board appointed by the King; but the graduate was not allowed to practice until after he had served one year under the guidance of an expert physician. Fees were prescribed, which provided for free treatment of the poor. A high ethical code was provided by royal decree.

It is to the credit of Charles I and Charles II of Anjou that they supported the university to the extent of paying large salaries to attract the best teachers, and increased the facilities for training.

A royal decree issued by Charles I of Anjou (1268) as a public health measure is quoted here:

CLEANSING AND PURIFICATION OF THE AQUEDUCTS OF BOLLA

(Mundatio et Purgatio aquæ ductus Bullæ. Reg.; Ang-1268-On-Fol. 69-1)

It is ordered that a tax of two hundred ounces be imposed among the inhabitants of Naples and its Casali [towns in the suburb] for the purgation of the aqueducts which go to the Fonte [reservoir] of Formello, and afterwards in the fountains and in the wells of this territory, which [aqueducts and wells] are filled with filthiness, lote, and muddiness, because of which this said water becomes not suitable to the use of men, and not free of perils; and more also because of the dwelling of the King, our lord, and of his family; also for the soundness [health] of all inhabitants, citizens as well as students, and of foreigners who from all countries come here. And this money will be paid to John Siginolfo and Serge Pinto from Naples [Neapolitans], who will purge and clean the said aqueducts; and if some parts [of them] are ruined, or uncovered, they are to be well repaired and covered, in such manner that the water, which at present is almost fetid as not to be good for drinking, will be purified and render itself good, limpid, and agreeable to the taste, because it is necessary that this element be pure, limpid, light, and purified.

Charles II of Anjou instigated malaria-control measures by the following order in 1309:

ON THE FLOW OF THE WATER OF THE PALUDE NEAR THE NEAPOLITAN TERRITORY

(De fluxus aquæ Paludis prope Neapolitanum territorium. Registro Angioine A-1309-Fol. 35.7)

Considering that the fluviatile [spring and rain water] of the Palude [an extension of land used for the cultivation of green vegetables, green gardens] which is between S. Brancacium and Porclanum, on account of some obstacles [which exist] along their channels, scarcely flows, and very often stops, in consequence of which not only in these channels but also in the surrounding places the air corrupts itself, and, moreover, the camps situated on both sides, at present existing can not be cultivated with benefit, we order that this water be collected and flow through a single channel, and that the entire source of the channel from its origin to its end, be enlarged and drained, so that the collection of water [pools] shall never be possible, and the camps in such a way freed, will permit the circulation of the men [laborers] in the Palude, and that above this water, for the public utility grain mills be built.

Many other decrees, such as the removal of tanneries from the city limits, disposal of the dead, burning of homes of sufferers from tuberculosis, isolation of lepers, and draining of swamps as an antimalaria measure, are on record.

Previous to 1561 no vital statistics are available, but on January 3 of that year an order from the Pope was issued to all parishes whereby record books were established for the registering of all births. Later there followed the registration of deaths.

Of signal interest is the decree of Ferdinand IV, issued January 20, 1778, making protection against smallpox compulsory by scab inoculation through the nose. This was 20 years before Jenner's original publication.

In 1800, following the end of the first Bourbon period (1734–1798), a political upheaval took place, and by royal decree of Ferdinand IV all provincial tribunals were abolished, including those dealing with the public health, and for a time only occasional orders were issued by the King to meet public health emergencies as they arose. In 1815 the Bourbon line again came into power, and in 1819 a really constructive health law was promulgated whereby the King appointed a "Sopraintendenza Generale di Salute" (general superintendent of public health), with an advisory council comprising the faculty of the medical school of Naples. This organization had much latitude in public health control, and was existent through the Bourbon period and to 1861, after Italy had become a united Kingdom divided into five districts, with a director of public health in each district. The division of the health work into districts was accomplished following the International Sanitary Conference at Paris (June 30, 1861), when the various nations met in council for mutual protection against plague and cholera. The Province of Naples, however, maintained its own health organization as heretofore.

The year 1888 marks the beginning of public-health control in Naples, as well as in the whole Kingdom of Italy as we see it to-day. Legislation provided for a director general of public health for the Kingdom and decentralized control in the Provinces and cities. In that year communicable diseases for the first time were made reportable.

THE PRESENT PUBLIC-HEALTH ORGANIZATION

In a discussion of the present public-health administration in the city and Province of Naples, Italy, it is necessary to mention briefly the health organization of the entire Kingdom, as each local unit of administration is an integral part of the national organization.

The present national health service operates under the law of August 1, 1907, and the royal decree of December 30, 1923, through the Minister of the Interior, with a director general of public health, a layman, in immediate charge. The director general exercises general control, but depends upon a vice director (the chief inspector general), who is a physician, for the immediate supervision of the public-health activities. This national organization consists of veterinary, general inspection, and laboratory services.

The chief veterinarian in Rome is in charge of the "Zooiatric service." He supervises all the provincial veterinarians for Italy relative to meat inspections, investigation of diseases of animals, condition of stables, and quarantine against the importation of animals with infectious diseases. This quarantine is in effect at all seaports and at certain posts or land ports along the frontiers. There are 15 veterinarians assigned to this work. In addition, there are two general inspector veterinarians at large, who inspect the work in the field, reporting to the chief inspector general, and the chief of the zooiatric service. There are also 79 provincial veterinarians who are sent to various Provinces by the chief inspector general, through the chief veterinarian.

In the inspection service there are seven inspectors general at large. One spends all his time in various countries to study new methods and make observation to improve the home service. The other six make general inspections throughout the Kingdom to investigate general outbreaks of disease, and to cooperate with the provincial and municipal health authorities.

In addition, the central health organization supports bacteriological and chemical laboratories with a corps of competent bacteriologists, chemists, and technical assistants. Two general pharmacist inspectors study new drugs which are placed on the market and from time to time assist in revising the official pharmacopœia.

The National Government controls the entire health organization of the Kingdom and the colonies, even to the smallest municipality. The service offers a career, and all scientific appointments are made by competitive examination. First appointments are known as third class, and promotions are made to second and first class, respectively, and finally to general inspectors at Rome, depending on merit.

All stations (provincial and municipal) with populations of 150,000 or over have an officer of the first class. Provincial health officers can be transferred to new posts as the good of the service demands. After 20 years of service all employees are entitled to request retirement, and those reaching 65 years must be retired for age. Those retired receive a pension, the amount depending upon the salary. Various public health bodies such as the Central Superior Sanitary Council (Consiglio Superiore di Sanita), composed of leading health authorities, and the Consultative Commission for School Hygiene (Commissione Consultiva per l'Igiene Scolastica), act in an advisory capacity to the director general of public health.

PROVINCIAL ORGANIZATION

Italy is divided into 123 Provinces, each Province (of which the Province of Naples is an example) having a health organization under the provincial health officer or "medico provinciale." This medical officer is under the direct supervision of the chief inspector general in Rome, but works in the closest liaison with the civil commissioner in administrative charge of the Province (alto commissario), who is appointed by the Minister of the Interior. The title "alto commissario" is used only in the Province of Naples. In other Provinces the civil commissioners are called "prefects." The provincial health officer is detailed by the central health organization in Rome, and is answerable directly to that organization, but keeps the civil commissioner informed at all times as to his activities. The provincial health organization is a distinct entity, although operating under the general supervision of the chief inspector general in Rome. The activities of the provincial health organization may be divided into quarantine and general.

The quarantine work is under the jurisdiction of the port sanitary medical officer, who is assigned to the Province by the chief inspector general. He is assisted by 2 medical officers, 1 bacteriologist, 2 chief sanitary guards, and 14 sanitary guards. His duties, in brief, are to enforce the port quarantine laws, which are in keeping with the national law, to inspect passengers for quarantinable diseases, to fumigate all ships, and to supervise the laboratory work of the port. The sanitary guards are nonmedical employees, but are skilled in matters of quarantine and sanitation. They assist in the fumigation of ships in company with the doctor of the port. They also take samples of water from ships for examination and make sanitary inspections. All these activities are in conformity with the international convention of Paris of June 21, 1926.

Two veterinarians are detailed by the director general of public health to the Province of Naples, in connection with the quarantine inspection of animals, animal skins, and skin products. In each first-class port a provincial veterinarian is detailed for the sanitary inspection of animals coming into or going out of the port, and for the sanitary inspection of meat and meat products. Inspection is also made of fruits and vegetables coming from the countries actually infected, or suspected to be infected, with "*Filloxera.*"

Three medical officers assist the provincial health officer in the Province of Naples in the carrying out of his duties. Each assistant supervises one-third of the Province and observes the working and practical health administration of the various municipalities in his jurisdiction.

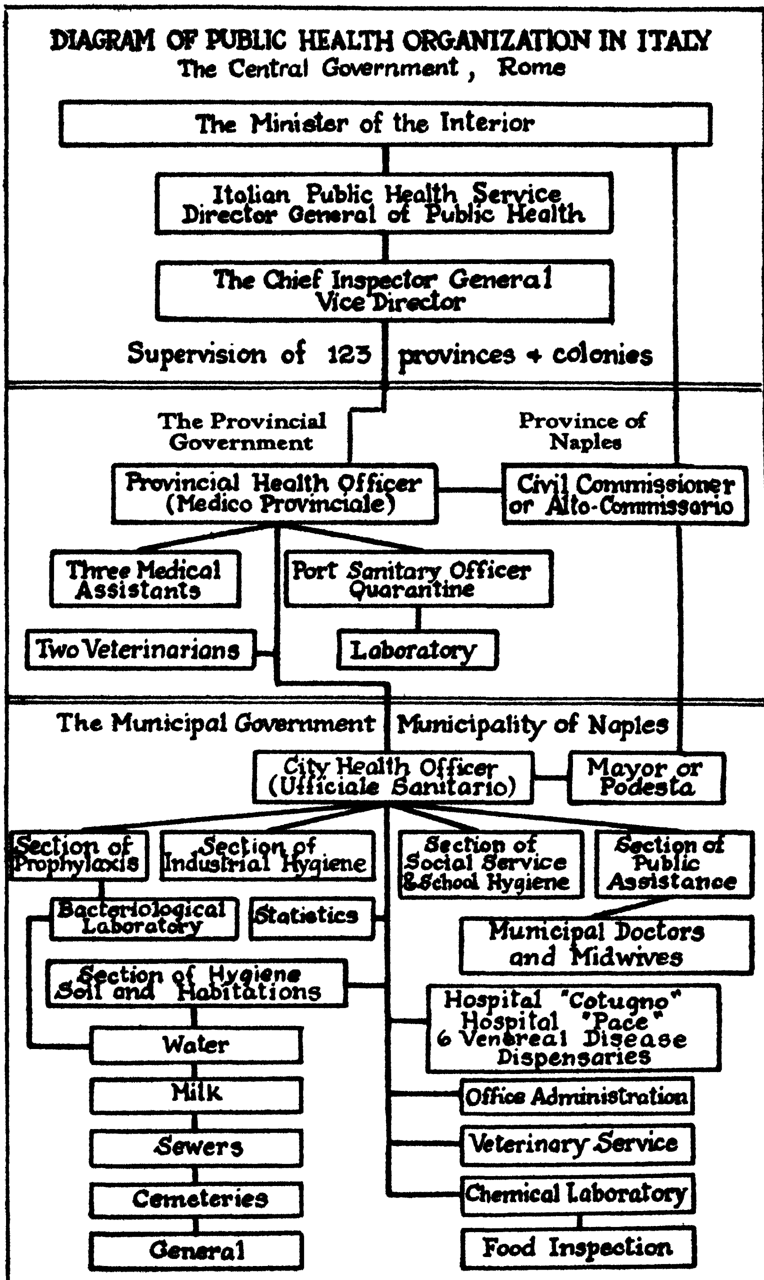
DIAGRAM OF PUBLIC HEALTH ORGANIZATION IN ITALY
The Central Government, Rome
The Minister of the Interior
Italian Public Health Service
Director General of Public Health
The Chief Inspector General
Vice Director
Supervision of 123 provinces + colonies
The Provincial Government
Province of Naples
Provincial Health Officer (Medico Provinciale)
Civil Commissioner or Alto-Commissario
Three Medical Assistants
Port Sanitary Officer Quarantine
Two Veterinarians
Laboratory
The Municipal Government
Municipality of Naples
City Health Officer (Ufficiale Sanitario)
Mayor or Podesta
Section of Prophylaxis
Section of Industrial Hygiene
Section of Social Service & School Hygiene
Section of Public Assistance
Bacteriological Laboratory
Statistics
Municipal Doctors and Midwives
Section of Hygiene Soil and Habitations
Hospital "Cotugno"
Hospital "Pace"
6 Venereal Disease Dispensaries
Water
Milk
Sewers
Cemeteries
General
Office Administration
Veterinary Service
Chemical Laboratory
Food Inspection

MUNICIPAL ORGANIZATION

The municipal organization is in harmony with the general law of the Kingdom, but operates under definite regulations approved March 15, 1928, by the "Giunta Provinciale," a board appointed by the Government in Rome, which operates in each Province for the purpose of setting forth general regulations of governmental operations and checking the fiscal affairs. The municipal health officer is known as the "ufficiale sanitario." This officer receives his appointment through competitive examination. The examination is given by a board composed of the provincial health officer and three professors of the faculty of medicine in the University of Naples, one of whom must be a professor of hygiene. The successful candidate is recommended to the civil commissioner, who makes the appointment advising the director general in Rome.

This same procedure of competitive examination holds true for all subordinate doctors and other scientific personnel. They receive their appointment, however, from the "podesta," or mayor of the city (an appointee of the Minister of the Interior), instead of from the civil commissioner. Their services can be discontinued by the mayor. The tenure of office of the municipal health officer is permanent, and he can not be discharged by the mayor. He can be dismissed only by the director of public health in Rome.

In brief, the personnel under the jurisdiction of the municipal health officer comprises bacteriologists, chemists, and technical assistants for the laboratories, veterinarians, sanitary engineers, and a medical staff.

The physicians employed in this health work may be divided into two general classes:

1. Municipal physicians, part time (medici condotti). These physicians do relief work and make some sanitary inspections.

2. Physicians, or hygienist physicians (medici igienisti). These are full-time officials, with a public health degree, employed in the various divisions of the health department. A vital statistician and a corps of administrative personnel, including clerks, complete the organization.

The numerous sections under the direction of the municipal health officer, covering activities wide in scope, may be discussed briefly as follows:

I. PROPHYLACTIC SECTION

A physician is in charge of this section, with the following responsibilities:

1. Bacteriological laboratory. This laboratory is utilized in connection with the diagnosis of infectious diseases and clinical investigations in cases of charity patients. Examinations of the drinking water of the municipality are made by this laboratory three times

daily, the water being taken from three separate sources for each examination.

2. Investigation of infectious diseases when reported, the quarantine of patients and their hospitalization when necessary, disinfections and fumigations.

3. The proper disposal of bodies of those dead from infectious disease.

4. Direction of the disinfecting plant, where all bedding, clothes, linen, etc., are treated with dry steam under pressure when necessary, following infectious diseases.

5. In cooperation with the veterinary service, assists in the prevention of disease from animal infection.

6. Compiles statistics of reported cases.

II. SECTION OF PUBLIC ASSISTANCE

This section also has a physician in charge, and has to do mainly with general relief work. The duties of this officer are, in brief—

1. To grant hospital permits to charity patients, and to investigate the period of hospitalization. Charity patients are those persons who can not afford to pay for medical relief and who are so listed after official certifications to that effect, including police approval, are obtained.

2. To act as president of the board of examiners for examinations elsewhere described.

3. To supervise vaccinations. The vaccination law is very complete and provides for compulsory vaccination for all infants within six months after birth, the physical condition permitting. Revaccination is required at 8 years of age. Notices to vaccinate are sent to the parents three months after the birth of a child. If not complied with, the parents are fined by the court and the child is vaccinated by the city authorities. If smallpox appears in a house, all persons in that house must be vaccinated. Persons residing in the immediately adjoining houses and in the houses across the street must also be vaccinated. All children must be vaccinated before entering public and private schools, or show certificates of a recent vaccination. This rule also applies to factory workers. Free vaccine is supplied by the Government in unlimited amounts.

4. To keep the files of the persons listed as needing charity medical aid.

5. To direct the post-mortem service and perform necropsies when indicated.

6. To supervise the hygiene of morgues.

7. To employ specialists in certain cases.

8. To supervise all municipal physicians.

The municipality of Naples, including four villages and eight aggregated communities, is divided into 24 sectors, 12 belonging to

Naples proper (quartieri). Two quartieri comprise a section, making six sections in the municipality, and in each section are four municipal physicians, except in the villages and communities, in which there is only one. The municipal physicians are on part-time basis. When they are not on duty in the local sectional office, they may be communicated with in their homes.

All birth reports, marriage reports, death reports, and vaccination reports are submitted by the local practitioner to the sectional office applicable, and these records are kept in the local office, but are sent each day to the statistical section, city health department.

The municipal physicians must live within the sections of the city which they serve officially, and some one must be at their residence at all times in order to receive calls and give advice. Their private offices must also be suitably placarded. Their duties are numerous and may be summarized as follows:

1. To give free medical, surgical, and obstetrical treatment to the city poor at the sectional office or, if necessary, answer calls to the homes of patients. They hospitalize, if necessary, in approved hospitals, the municipality paying all expenses. They must provide their own instruments, but may prescribe medicines through prescriptions. They are expected to keep themselves informed as to the activities of the pharmacies in their jurisdiction authorized to fill such prescriptions, and to see that the practice is not abused. There are 12 such pharmacies open day and night.

2. To vaccinate all people on request, irrespective of means; to vaccinate school children and the personnel of official organizations, such as the police and the fire departments.

3. To keep records of all patients and to submit reports.

4. To visit all cases of infectious diseases, taking the first steps in prophylactic measures, and informing the prophylactic section for further "follow-up" work; to make any visit on request of the prophylactic section; and to visit persons in quarantine.

5. To render first aid in public disasters or accidents.

6. To perform autopsies and inspection of bodies before burial.

7. To submit quarterly reports to the municipal health officer as to diseases treated, and also to report to him all nuisances and unsanitary conditions found in their section, and any suspicious or known infectious diseases.

8. To supervise the services of midwives (levatrici condotti) and to take charge of a case when necessary.

9. Additional duties of the municipal physicians are the general examination of all employees of the municipality before employment, such as employees of the health department and policemen and firemen. They also examine all applicants for chauffeur's license, and for retirement from the municipal service. In this service they

act with a board of three, the chief of the prophylactic section acting as chairman.

There is a supplementary group of physicians who are within call, to be used as replacements when the regular municipal physician is out of the city or ill.

In each sectional office there is a clerk and one municipal guard. The clerk is engaged in taking care of the clerical work and the registration of births and deaths. Vaccination records of infants are kept, or the certificates of physicians to the effect that the condition of health prevents vaccination, and a list of persons who have not complied with the vaccination law. The guard is a lay inspector with police authority.

10. The chief of this section also has charge of midwives, who are appointed by competitive examination, and act only in cases which appear on the "poor list." These midwives are under the direct supervision of the municipal obstetrician and the municipal physician. Their duties, in brief, are as follows:

To attend to all obstetrical cases on the request of the municipal physician; to request assistance in abnormal cases; and to stay with the mother eight days after the child is born. The midwife must transmit reports about her activities and fill out the birth certificate for the report of the municipal physician. This report goes to the sectional office in which section the birth occurred.

Communicable diseases.—Under the general law, it is compulsory for each practitioner of medicine to report to the municipal sectional office all cases of the reportable diseases listed herewith. When the report is received, the municipal physician on duty visits the home and instigates such prophylactic measures as are necessary. He advises the municipal health officer, who in turn notifies the prophylactic division for further observation and "follow-up" work.

The municipal health officer sends a daily consolidated report to the provincial health officer, who in turn reports to the director general of public health in Rome. In the event of smallpox, cholera, bubonic plague, or yellow fever, reports are submitted immediately to the provincial health officer and the director general. The list of human diseases, compulsorily reportable but not placardable, are as follows:

Measles.
Scarlet fever.
Chicken pox.
Typhoid fever.
Paratyphoid infections.
Mediterranean or undulant fever.
Leishmaniasis (kala-azar).
Bacillary dysentery.
Amœbic dysentery.
Diphtheria and croup.
Whooping cough.
Hookworm disease.
Typhus fever.
Leprosy.
Malleus.
Epidemic parotitis (mumps).
Pulmonary tuberculosis.
Epidemic influenza.

Cerebrospinal meningitis.
Poliomyelitis.
Lethargic encephalitis.
Puerperal fever.
Malaria.
Pellagra.
Trachoma, and other contagious conjunctivitis.
Gonorrheal ophthalmia of the newly born.
Rabies.
Malignant pustule.

The only quarantinable diseases are smallpox, cholera, plague, typhus, and yellow fever; and these are not placardable.

The hospital "Cotugno," of 250 beds, operated and controlled by the city health department, is maintained solely for communicable diseases. Patients who can not be given proper care in the home are hospitalized there free of charge. Rooms are available to pay patients, and patients from other cities in the Province are admitted at the expense of their respective municipalities.

When quarantinable diseases occur, hospitalization must be furnished only at the "Cotugno" hospital. The benefits of this hospital extend to all living within the Province of Naples.

All sewage from the hospital passes through three tanks of hypochlorite, remaining 18 hours in each tank, before being discharged into the city mains.

During the calendar year 1930, cases of the following diseases were hospitalized, the majority coming from the Province outside the city of Naples:

Measles	161	Scarlet fever	30
Diphtheria	482	Typhoid fever	167
Chicken pox	46	Cerebrospinal meningitis	12

Venereal disease control.—Venereal diseases are not required to be reported under the law, but provision is made for out-patient treatment and hospitalization of patients at the venereal disease hospital "Pace," supervised by the city health department. In this hospital all applicants are treated, irrespective of nationality, including all foreign seamen. Treatment is free, but a charge for salvarsan is made when the patient is able to pay.

Subsidiary to the hospital are six out-patient dispensaries located throughout the city, with a part-time physician in charge and attending personnel. The hospital receives patients through these dispensaries.

The houses of prostitution are inspected by Government medical officers from Rome. Each house is obliged by law to have a visiting physician (approved by the provincial health officer), who once a week examines all prostitutes living there. If healthy they are given certificates of health; if diseased they are taken to the hospital "Pace" and the house is closed for a time.

It is of historical interest that mercurial ointment, or "Neapolitan ointment," as it was then designated, was first made in Naples at the "Ospedale Incurabile." What is said to be the original mortar

and pestle used in making the first ointment can be seen at that hospital to-day.

III. CHEMICAL LABORATORY

The Chemical Laboratory is a very important branch of the health department. There is a doctor of chemistry in charge, with the following duties:

1. In charge of food and drink inspections and the chemical examinations of all foods, meats, and drinks, and of the water supply. A doctor of hygiene, a veterinarian, and a public guard make periodical inspections; and when any food is suspected of being impure or adulterated, samples are taken to the laboratory for chemical analysis. When food is found to be adulterated, the municipal health officer is immediately notified and the food is confiscated. The proprietor of the shop may be subject to a fine by the court.

2. Supervision of the general sanitary conditions surrounding the public markets and places where food and drinks are sold.

3. Chemical analysis for private concerns or individuals, for which charges are made. The money so received is returned to the budget of the health department.

The chief of the laboratory has under his immediate direction a variable number of assistants, such as technicians, sanitarians, doctors of hygiene, veterinarians, and municipal guards.

IV. SECTION OF INDUSTRIAL HYGIENE

This very important branch of the health department is in charge of a physician with the following duties:

1. To enforce the sanitary laws and regulations with regard to industries in the municipality.

2. To report relative to the advisability of granting licenses for new industries after a careful examination of the general construction of the plant, the situation of the workrooms, and the general technique of the work which has been proposed, and to recommend the discontinuance of industries which fail to meet the requirements.

3. To make periodical hygienic inspections to see that the health of the workers is at all times protected.

4. In the largest factories, especially where many women are employed, certain rooms are set aside for children of such mothers. These children are cared for while the mother is working, and may be nursed by the mother at certain times of the day. This children's room, the first-aid dispensary, and the pharmacy are subject to hygienic inspection by this division.

5. To promote physical exercise among the workers through teaching and propaganda.

6. To prevent the spread of infectious diseases in factories and industrial plants.

7. To make medical examinations for employment of women of all ages and boys up to 15 years of age. After the examination they are granted a document known as "Libretto di Lavoro," necessary permission to accept labor.

8. To vaccinate all workers in industries.

V. SECTION OF SOCIAL SERVICE AND SCHOOL HYGIENE

The head of this section is a physician, who has the following duties:

1. To supervise the work of infant feeding in the various district offices (same offices as those of the municipal physicians) where milk for infant feeding is distributed if permits are obtained from the Association for the Protection of Maternity and Infancy.

2. To supervise the general hygiene and work of the twenty kindergartens, located in each section of the city, where kindergarten training is provided for children from 3 to 5 years of age.

3. To supervise the physical examination of all children entering the municipal public schools. Trachomatous children are sent to special classes. All children with infectious diseases are sent home and the family doctor is notified. Remedial conditions such as adenoids, tonsillitis, and the like, are treated free of charge by the specialists employed by the health department. These specialists work under the supervision of the head of this division.

4. To advise as to new school projects and make periodic inspections of conditions of both private and public schools, suggesting improvements when necessary.

5. To distribute hygienic propaganda among teachers and pupils by lectures.

6. To have general supervision of the hygiene of open-air schools and camps.

7. To have charge of the prevention of tuberculosis and other infectious diseases in schools. Periodical inspections are made to prevent the spread of the infectious diseases. If a child is absent without a known cause, the municipal physician in the section visits the home, ascertains the cause of the absence, and takes proper steps in the premises.

VI. VETERINARIAN SERVICE

As mentioned previously, the provincial veterinarian is detailed by the inspector general at Rome. All municipal veterinarians are appointed by the mayor after competitive examination. There is a chief veterinarian in charge of this division, with 17 assistant veterinarians, of which a variable number are attached to other branches of the health department for special work in veterinary science. Their duties are as follows:

1. To make sanitary inspection of all municipal stables, keeping advised as to the health of the animals (horses, mules, etc.) and see to the proper disposal of manure to prevent the breeding of flies.

2. To have hygienic supervision of stables and animals used in the public cab service. This service is operated by private companies.

3. To inspect horses and other animals before being sold in the public market.

4. To inspect diseased animals and submit reports to the municipal health officer and the chief provincial veterinarian, when the following reportable diseases are found:

Bovine

Foot-and-mouth disease.
Hematic carbuncle.
Borbone (of the buffaloes);
Bovine tuberculosis.
Bovine pest (tick fever).
Pleuro-pneumonia.
Epizootic abortus.
Diarrhea of calves.

Hogs

Pest (hog cholera).
Septicemia.
Epizootic pneumonia.

Horses and donkeys

Malleus.
Infectious pleuro-pneumonia.
Itch.

Sheep and goats

Itch (acarus).

Poultry

Cholera.
Hæmorragic septicemia.

5. To inspect before slaughter all animals used for food and to inspect all abbatoirs. When meat is passed, it is officially stamped, otherwise it is destroyed; or certain meats may be sold only after cooking. The quarantine of animals entering the port of Naples is under the supervision of the provincial veterinarian detailed to the provincial quarantine office, the municipal veterinarian having no jurisdiction in these matters.

VII. SECTION OF HYGIENE, SOIL, AND HABITATIONS

The activities of this section, under the supervision of a medical officer, with two sanitary engineers, may be discussed under five groups:

1. *General.*—Before any house can be built in the municipality, plans must be submitted to this division for approval relative to—

a. Elevation.
b. Water supply.
c. Bathing facilities.
d. Sewage disposal.
e. General fitness.

All restaurants, dairies, cafés, barber shops, and places where food or drinks are dispensed are required to obtain a permit from the chief

of this section, which is issued after compliance with the sanitary regulations. Licenses may be revoked if necessary.

2. Disposal of the dead.—Under the present health laws of Naples a rather strict supervision is exercised over the disposal of the dead, and this responsibility is a part of the activities of the section of hygiene.

In ancient times, under the Roman rule, it was forbidden to bury the dead within the city limits. This regulation continued in force until 800 A. D., when Charles the Great permitted the burial of the dead in the grounds of the churches. Naples was one of the first cities to adopt this practice; and, in time, each church had its own burial ground. Those dying in hospitals were buried in the churches attached to the hospital. The devastating epidemics of plague which visited Naples from time to time with such appalling mortality made it necessary to change the location of these cemeteries. A new cemetery outside the city limits was created by Ferdinand IV of Bourbon, in 1762, for the "Ospedale Incuràbile", and by 1817 it was decreed that all dead should be buried outside the city limits, a regulation at present in force. A special cemetery was established in 1836 on account of cholera.

When a death occurs it is immediately reported to the local registrar; the health officer is notified, and he sends a municipal physician to the house, who inspects the body and grants the burial permission. When the body arrives at the cemetery, a doctor of public health who is the director of cemeteries (attached to this section) inspects each body to determine whether all the sanitary rules pertaining to the disposal of the dead are complied with.

Two systems of burial are in vogue: (1) A permanent burial, which necessitates special permission from the chief health officer. By this method the body is permanently sealed in a crypt in the cemetery outside the city limits. (2) A temporary burial, where the body is placed in the ground, and after a variable time, depending on age, the body is exhumed and then placed in a crypt. When death occurs from a communicable disease, the body is not exhumed until two years have elapsed. This method of exhumation is followed on account of the limited amount of land available for cemetery plots. The entire procedure is reported from the time of death until he time of burial, and is supervised by the section of hygiene.

3. Milk supply.—The regulations governing the sale of milk in Naples are promulgated by the section of hygiene. Prior to 1928 there was practically no supervisory control over the sale of milk. Cows were kept in courtyards and in grossly insanitary stables within the city limits, and were driven from house to house and milked in the presence of the milk purchasers. Adulteration of milk, as well as watering, was common. An idea of the quality of the milk may be

had when it is stated that in 1924, out of 2,972 samples of milk examined, not less than 1,806, or 64 per cent, were found to be adulterated; in 1925, out of 2,722 samples of milk, 1,781, or 64 per cent, were found to be unfit for use; in 1927, 35 per cent of the milk offered for sale was found to be unfit for use.

Under the present system all stables for cows must be at least 600 meters from the city limits; no cows may be housed within the city limits. In event of a prospective dairyman wishing to sell milk within the city of Naples, he must first apply for an inspection to the municipal veterinarian, and have all his cows tuberculin tested. These tests are made at his expense and may be accomplished by any reputable veterinarian. The inspection preliminary to receiving the permit must show clean hygienic stables, the accepted standard in the process of milking, proper sterilization of cans and bottles, a proper content of butterfat, and no adulteration. At any time after the permit is granted, samples may be seized and examined at the city laboratory.

Pasteurizing plant: The opening of the pasteurizing plant in Naples in February, 1928, was a most important step in the safe-guarding of the milk supply. This plant, although operated by a private company, is really controlled by the municipality of Naples to the extent that it may operate the plant as a concessionaire under the following terms:

(*a*) The duration of the concession is 30 years, but after 10 years the municipality has a right to take over the administration of the plant.

(*b*) The treatment of the milk from the time it reaches the plant until its distribution is under the constant sanitary control of the municipality, a chemical municipal laboratory being maintained at the plant for the necessary analysis and general hygienic supervision.

(*c*) Milk prices are fixed by the municipality, which receives two centimes (about one-tenth of a cent) on each liter of milk sold by the concessionaire, and all milk used for analyses goes to the municipality, which is likewise entitled to the proceeds of the sale of the confiscated milk.

(*d*) The concessionaire undertakes to develop the milk station to render it capable of treating a maximum of 135,000 liters of milk per working day of eight hours, and to build a separate plant for the production of by-products out of milk unsuited for pasteurization.

(*e*) The concessionaire is to maintain motor conveyances in order that milk may be available at the plant in all seasons of the year, at a temperature of not less than 15° C.

(*f*) Three distributing centers are also to be established and operated by the concessionaire in the city of Naples.

At the pasteurization plant the present procedure is, in brief, as follows:

The milk is received at the plant in large cans brought from dairy farms (these cans being the property of the pasteurizing plant and of standard size). Samples are taken from each batch of milk and examined for butter content. Each sample must show at least 3 per cent of butterfat or it is confiscated by the municipality. At the present time no standard is fixed for temperature, but it is anticipated that soon no milk will be received with a temperature of more than 15° C. Tests are also made for acidity and specific gravity. Only milk with a specific gravity between 1,029 and 1,034 is accepted. Total solids must not be less than 9 per cent. After being accepted, the milk is poured into a large container, where it is weighed, and then pumped into large holding vats, where it is gently agitated. From these vats it flows into centrifugal cleaners. These cleaners extract about 10 pounds of dirt per thousand gallons of milk. From the cleaners it flows into what is known as "preheaters" and is given a temperature of 65° C.; after this it goes into pasteurizers, equipped with recording thermometers, where it is heated to 65° C., and is continuously agitated for 30 minutes. From the pasteurizers it flows over a series of freezing pipes and is rapidly chilled almost to freezing. In this state it is automatically bottled or canned, sealed, and conveyed to refrigerating rooms on running platforms, where it awaits delivery. This milk is distributed twice a day by a fleet of motor trucks.

All cans and bottles are washed by machinery in hot soda and rinsed; cans are steamed. This plant is capable of treating from 35,000 to 37,000 liters per day. The milk that flows through this plant comes from approximately 500 farms within an area of 60 miles of Naples.

It is to the credit of Naples that it was the first city of Italy to place milk-distributing services on a sanitary and efficient basis, although now such plants are found in other cities of Italy.

4. *Sewer system.*—Naples has had a sewer system since the early Greek period, as excavations have proved the existence of sewers of stone and mortar emptying into the sea dating back to those early times. Then a public officer exercised supervision over all the sewers as well as over the water supply.

During the Greek-Roman era the system enlarged as the city grew, provisions being made for rain water to drain into the sewer pipes, thence to the sea—a natural drainage for Naples. The city expanded faster than the sewer system, for we find during the reign of Charles of Anjou in 1266, the "pozzi neri," or black pits (cesspools), at many homes where sewer connections were not possible. In 1881 there were 8,000 such pits in the city.

Much was done to extend the system from 1532 to 1553, during Spanish rule, an important step being the connection of cesspools with the sewers and more adequate flushing by diverting rain water through the sewer mains.

Just as a plague stimulated better quarantine laws, so the devastating epidemic of cholera in Naples in 1884, vividly remembered by one of the authors (E. B.), actuated serious attempts to give Naples a sewer system that was safe, with an effluent far removed from the city. At that time (1884) there were 54 large sewer outlets draining from the hill and plain sections of the city into the Bay of Naples. Extensive surveys were made and plans formulated, but it was not until June 2, 1889, that the project now in use was approved by the Government at a cost of 23,163,194 lire (about $1,219,115).

The present sewer system is very extensive, and it is compulsory for all buildings situated within the zone of the system to be connected with it. Where this is not possible in outlying districts a water-tight ventilated pit privy is required. Periodic inspections are made by health officers and municipal guards assigned to the section or division of hygiene in enforcing the sanitary code. Sanitary engineers are also attached to the division to supervise the operation of the sewer system.

The sewage of Naples eventually flows into one of three mains, or "collectors," as they are called. These collectors, known as high, middle, and low, are situated, as implied, one above the other at different levels.

The high collector drains the mixed sewage and rain water; the other two collectors are each divided into two parts—one for sewage, the other for rain water. The rain water from these two collectors drains into a main conduit, emptying into the sea at Capo Posillipo, 5 kilometers away. The water from the low collector has another outlet to the Sebeto River, near Naples.

The sewage flowing through the lower collector is pumped by six pumps to the middle collector, and is then repumped, together with the sewage from the middle collector, to the large receiving basin at Piedigrotta (within the city), which receives also sewage and rain water from the high collector. Before reaching the pumps the sewage from the middle and low collectors is strained and the solid material is burned.

From the large receiving basin, all the sewage of Naples flows through a large main and discharges in the Gulf of Gaeta at the site of the ancient city of Cumae, about 10 miles from Naples. The declivity of this main is about 4 feet in each mile, with a rate of flow of a little less than 2 miles an hour. Each day nearly 5,000,000 gallons of sewage discharges into the sea about 160 feet from the shore line.

The Naples sewer system, with its 150 miles of piping in the city, is growing to meet the new demands of city expansion and is worthy of comment in providing for a safe disposal 10 miles away, so that the Bay of Naples is free from gross pollution.

5. Water supply.—Naples under the early Greeks enjoyed an abundant water supply, more as a military necessity, in case of siege, than as a public health expedient. In those days the source of the supply was the "Springs of Bolla," three in number, then about 7 miles away, now 4 miles, whence the water flowed through a large brick aqueduct to a reservoir in the city. The age of this aqueduct is not definitely known, except that it existed many years before Christ; and it is used to-day to help provide modern Naples with water other than for drinking purposes.

From the reservoir the water was delivered to various parts of the city through an elaborate subterranean aqueduct system to fountains and to the baths, both public and private. Many homes were also provided with reservoirs filled from the public supply. The overflow from the main reservoir was used as power to operate grain mills.

As the city grew toward the hills and high places, wells and rain water were depended upon, as apparently gravity alone was utilized in promoting the flow.

During the reign of the Roman Emperor Claudius (41–54 A. D.) an immense aqueduct was built from the Springs of Serino (some 40 miles from Naples) to the "Piscina Mirabilis," near Baia. This huge reservoir, still in a perfect state of preservation, furnished the Roman galleys with their water supply. The Claudian aqueduct passes through Naples, and during the reign of the Spanish Viceroy Don Pedro de Toledo (1532–1553) it was suggested by Lettieri, a prominent engineer, that the aqueduct be restored and the additional supply from Serino be brought to Naples to meet the expansion of the city, which by that time had outgrown the Bolla supply. At that time the cost (80,000 ducats) seemed prohibitive, and the work was not authorized by the Spanish Government. Subsequently the Bolla supply proved inadequate to meet the demands of city expansion along the southern flank of the hills and as water power to operate the growing number of grain mills, and various projects were advanced, to be rejected, until May 7, 1627. Then, after 11 years of discussion, the plans of Carmignano and Ciminelli, two Neapolitans, were approved by the Supreme Council of the Spanish Viceroy Don Antonio Alvarez de Toledo.

These plans provided for an additional supply from the springs which form the river Faenza, about 16 miles from Naples.

A new aqueduct, which up to the time of its abolition was called the "Aqueduct of Carmignano," was built and new laterals were

constructed, separated from the Bolla system. This additional supply seemed to prove adequate, besides furnishing power to 30 stone grinders in four grain mills. It was forbidden to use this water for any purpose other than for drinking and mill power, while severe penalties were decreed for any damage to the aqueduct. Death was the penalty for intentional pollution of the supply.

This system, finished May 29, 1629, supplied Naples with an additional 12,000,000 gallons of water daily. It is interesting to note that the contractors financed the construction of the Carmignano aqueduct and the city the lateral aqueducts within the municipality.

The year 1629, then, found Naples with two distinct water supplies, with an output totaling 150,000,000 gallons daily, and supplying 6,000 private reservoirs besides 200 fountains and baths and furnishing power in the operation of mills and granaries.

According to records, Naples enjoyed this water supply without interruption for over 200 years, when Felix Abate, in 1842, suggested the old plan of Lettieri, advanced years before, to bring the Serino supply to the city through the old Claudian aqueduct. It was again rejected and the whole subject lay dormant until 1868, when the possibility of disease was suggested through the pollution of the common supply from the close intermingling of the water and sewer mains. Finally, the plan of Mendia, an engineer, to utilize the Serino supply was advanced in 1869, and approved in 1877 by the Government at Rome.

The completion of the Serino system, with new aqueducts, gave to Naples one of the finest water supplies in the world, reaching to all parts of the city and at all times abundant.

The sources are the springs of Serino, consisting of two groups—the Pelosi group, with a minimum daily output of 8,000,000 gallons and situated 1,220 feet above sea level, and the Orciuoli group, 1,080 feet above sea level, with a minimum daily flow of 27,000,000 gallons. If necessary, the Acquaro group of springs can be tapped, which would give 6,000,000 or more additional gallons of water.

From the springs of Serino the water flows by gravity to a small collecting reservoir, and then, passing through a conduit 37 miles long, through hills and over valleys, to the large storage basin on the hill of Cancello, 797 feet above sea level and about 14 miles from Naples.

Under pressure, through large aqueducts it is carried to the two reservoirs in the city of Naples—the Scudillo reservoir, 600 feet above sea level, with a capacity of 5,500,000 gallons, for the high sections of the city, and the Capodimonte reservoir, 300 feet above sea level, with a capacity of 22,000,000 gallons, for the remaining sections of the city. An elaborate piping system, 200 miles in length, provides the final distribution within the city.

From the Cancello basin a separate aqueduct carries the supply to the outlying towns in the Province of Naples.

Since the source of this supply lies within the Province of Avellino and is distributed throughout the Province of Naples, the system falls under the supervision of the provincial health officer, although the city health department makes general sanitary inspections of the system within the city and performs the laboratory and chemical tests.

The springs and reservoirs are periodically inspected by officers from both the provincial and municipal governments.

The Serino water supply is absolutely untreated and is delivered to the home in the same state as received from the springs. Every day samples are taken from the city reservoirs, and from taps in various parts of the city for bacteriological examination. For the past 20 years this Serino water has given the following average counts:

Reservoirs

From October to April: 2 bacteria per c c.
From May to September: 4 bacteria per c c.

Private taps

From October to April: 6 bacteria per c c.
From May to September: 9 bacteria per c c.

The chemical analysis is constant and is as follows:

Quantity, 1 liter

	Grams
Dry residue, at 110° C	0. 2420
Dry residue, at 180° C	. 2373
Calcinated residue	. 2273
Volatile material, at 180° C	. 0098

Chemical analysis of the residue

	Grams
Silicic anhydryde	0. 0167
Carbonic anhydryde	. 0663
Sulphuric anhydryde	. 0167
Nitric anhydryde	. 0073
Chlorine anhydryde	None.
Oxide of iron and aluminium	. 0030
Oxide of lime	. 0708
Oxide of magnesium	. 0162
Oxygen necessary for the oxidation of the organic material	. 00009

No traces of ammonia or nitric acid.

Upon the completion of the Serino system, the Bolla supply was utilized solely for industrial purposes and for street-sprinkling. To supplement this need, water from five artesian wells, city owned, are also used. In 1928 the Bolla supply was chlorinated, although at the time of this report it was not used for drinking purposes.

The old Carmignano water system was diverted into the sewer system.

To-day finds modern Naples enjoying the same water supply which served the Roman galleys nearly 2,000 years ago.

VIII. SECTION OF VITAL STATISTICS

This section is in charge of a physician known as the "Medico demografo." His duties in general are to collect daily reports from all sections and subsections of the health department as to births, deaths, marriages, morbidity, and vaccinations. He also collects periodical reports for compilation of the monthly bulletin, and the preparation of all statistical reports dealing with the activities of the department.

IX. SECTION OF GENERAL ADMINISTRATION

This section is in charge of a chief clerk, and has to do, as its name implies, with the general clerical administrative work of the department, such as keeping the records, files, licenses, and notices, and doing whatever clerical work may be necessary as requested by the health officer.

DISPOSAL OF GARBAGE

This activity is not a part of the public health administration, but is mentioned as an item of interest. All garbage is periodically collected by the municipality and sold as fertilizer. A part is fermented under the Beccarri system, iron sulphate taking up the noxious gases. The products of this fermentation sell for a higher price than the raw garbage. This system appears to be operating satisfactorily.

MORBIDITY AND MORTALITY RATES

The city death rate averages yearly 11 41 per 1,000.

The infant mortality rate (deaths in infants 1 year and under) averages yearly 100 per 1,000 live births.

The tuberculosis death rate per 100,000 for the past five years has been as follows: 102 in 1926, 93 in 1927, 89 in 1928, 96 in 1929, and 111 in 1930.

During the calendar year 1930 among the communicable diseases reported are the following: Measles, 940 cases; diphtheria, 373; scarlet fever, 116; typhoid fever, 424. No smallpox was reported.

The reported number of cases of typhoid fever, 424, seems relatively high at first glance; but before the present sewer and water supply systems were in use, on the average from three to four thousand cases were to be expected each summer. In those days the majority of cases occurred in June, July, and August, while during the winter months Naples was almost free from typhoid. Now the typhoid rate is highest during October, November, and December, with few

cases reported during the summer months, the case incidence being higher among the wealthy or "well-to-do" class.

During the summer months approximately 100,000 people living in Naples leave for vacation trips and resorts, returning the latter part of October. According to reports from the city health department, they bring their typhoid back with them, which accounts for the high incidence among that class and the unusual seasonal prevalence. Cases also occur among those living in the outskirts of the municipality beyond the range of sewers, and where the institution of sanitary reforms seems difficult.

It is significant that no smallpox cases were reported. The public health authorities are strict in requiring the prompt reporting of the quarantinable diseases, and smallpox would have been on record if it had occurred. In all Italy during 1930 only six cases are on record. This is just another instance of the absence of smallpox in a population that is continuously and completely vaccinated.

PERSONNEL

The scientific and technical personnel of the city health department includes the following:

Chief health officer	1
Heads of medical divisions	5
Head of chemical laboratory	1
Chief veterinarian	1
Assistant veterinarians	17
Medici condotti (part time)	24
Medici condotti (relief)	2
Hygienists (medici igienisti)	41
Directors venereal disease clinics	6
Directors relief venereal disease clinics	1
Specialists (part time)	2
Director of hospital "Cotugno" and "Pace" and assistant doctors	8
Bacteriologist for "Cotugno"	1
Midwives	17
Director of cemetery	1
Assistant various laboratories	11
Statistician	1
Chief clerk	1
Total	141

Secretaries, clerks, stenographers, laborers, and miscellaneous workers make up the remainder of the personnel.

BUDGET

The total yearly cost of maintaining the health department of the city of Naples, including the maintenance of the two hospitals, averages 15,536,897 lire, or about $817,731. This represents nearly $1 per capita.

These funds are raised only from local taxes.

SUMMARY

The public health organization in Italy presents an interesting study, in that there is supervisory control direct from the central public health service in Rome over all the Provinces, colonies, and municipalities.

All public health doctors in administrative authority are career officers, receiving their appointment after competitive examination and retiring for age on a pension.

The public health administrators in the Provinces and cities are responsible only to the central authority in Rome, and are not under the official orders of the local authorities. This removes public health from the realm of local politics, although of course the closest cooperation between the civil and medical authorities exists. Public health administrators in the Provinces may be transferred to other localities as the occasion demands.

Maritime and border quarantine is conducted only by the central government, medical and veterinary officers being detailed to various localities for that purpose.

An efficient and elaborate veterinary service is maintained by the Government health service. Fifteen veterinarians are detailed to sea and land ports of entry and 79 to the various Provinces for general work.

In the city of Naples 18 veterinarians (including the chief of service) are part of the municipal health organization.

Charity relief, including medical, surgical, and obstetrical service, is furnished free to the city poor by the city health department. This is accomplished by part-time municipal physicians.

According to a report of the preparatory committee of the European Conference on Rural Hygiene recently published by the League of Nations, "Of a total of 20,000 physicians in Italy, 9,521 are municipal physicians."

Licensed midwives appointed by examination assist in the obstetrical service.

No public health nurses are connected with the public health service, national, provincial, or municipal.

Communicable diseases are reportable but not placardable. The quarantinable diseases are as follows: Smallpox, cholera, plague, yellow fever, and typhus fever.

Adequate vaccination laws are strictly enforced, and as a result smallpox is a most rare disease in Naples and throughout the Kingdom.

The disposal of garbage is not administered by the city health department.

Supervisory control is maintained over the disposal of the dead.

The city water supply is unique in that over 1,000,000 people, including the city of Naples and part of the Province, enjoy an untreated water supply from springs 40 miles away. This untreated water is practically sterile, as shown by bacteriological counts over the past 20 years. A separate chlorinated supply is utilized by the various industries and for street cleaning. A third supply is part of the sewer system.

The disposal of sewage is efficient in that it extends to all parts of the city and is carried, after partial screening, to the sea about 10 miles from Naples.

ACKNOWLEDGMENTS

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DEATHS DURING WEEK ENDED DECEMBER 3, 1932

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Dec. 3, 1932	Corresponding week, 1931
Data from 85 large cities of the United States:		
Total deaths	8,440	7,476
Deaths per 1,000 population, annual basis	12.0	10.8
Deaths under 1 year of age	628	566
Deaths under 1 year of age per 1,000 estimated live births [1]	51	44
Deaths per 1,000 population, annual basis, first 48 weeks of year	11.0	11.8
Data from industrial insurance companies:		
Policies in force	69,717,605	74,178,223
Number of death claims	13,247	12,885
Death claims per 1,000 policies in force, annual rate	9.9	9.1
Death claims per 1,000 policies, first 48 weeks of year, annual rate	9.5	9.6

[1] 1932, 81 cities; 1931, 77 cities.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended December 10, 1932, and December 12, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended December 10, 1932, and December 12, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Dec. 10, 1932	Week ended Dec. 12, 1931	Week ended Dec. 10, 1932	Week ended Dec. 12, 1931	Week ended Dec. 10, 1932	Week ended Dec. 12, 1931	Week ended Dec. 10, 1932	Week ended Dec. 12, 1931
New England States:								
Maine	2	7			2	264	0	0
New Hampshire		7				5	0	0
Vermont	2	1			1	87	0	0
Massachusetts	36	66	8	5	132	180	1	2
Rhode Island		7		3		338	0	0
Connecticut	11	5	7	3	23	53	0	1
Middle Atlantic States:								
New York	70	124	[1] 30	[1] 11	515	401	5	8
New Jersey	36	44	20	11	169	34	5	6
Pennsylvania	92	120			250	625	3	10
East North Central States:								
Ohio	56	118	256	22	284	124	2	2
Indiana	77	72	440	22	17	30	4	6
Illinois	66	161	119	73	87	34	7	5
Michigan	32	52	21	11	344	87	0	4
Wisconsin	16	23	65	19	215	57	1	1
West North Central States:								
Minnesota	16	26	3	1	168	11	0	0
Iowa	14	21				2	0	1
Missouri	48	90	123	7	31	5	0	1
North Dakota	8	30			78	16	0	0
South Dakota	18	8	1		4	125	1	0
Nebraska	7	17	6		1	22	0	0
Kansas	29	73	37		4	24	1	1
South Atlantic States:								
Delaware	4	14	6		1	2	0	0
Maryland [2]	17	70	57	16	8	6	0	0
District of Columbia	10	15	13	2	2	2	0	1
Virginia	47				187		0	1
West Virginia	41	53	24	5	116	286	1	1
North Carolina	48	87	68	32	96	19	2	3
South Carolina	13	13	1, 092	406	9	13	0	0
Georgia [3]	23	32	2, 079	67	11	2	0	1
Florida	20	16	22	2	1	2	0	1
East South Central States:								
Kentucky	48	94	683				1	4
Tennessee	46	66	1, 881	37		8	1	3
Alabama [3]	52	84	6, 687	21		18	2	8
Mississippi	23	51					2	0
West South Central States:								
Arkansas	20	30	1, 090	11	1	13	0	1
Louisiana	26	37	7, 149	27	1		0	0
Oklahoma [4]	44	104	469	47	3	1	0	0
Texas [3]	207	266	530	14	59	3	0	2
Mountain States:								
Montana		1	371	1	216	177	0	0
Idaho	3	1	4				1	0
Wyoming		7	30		11	1	0	0
Colorado	7	2	463		9	3	0	1
New Mexico	12	14	11			3	0	0
Arizona	7	14	238	7		4	0	2
Utah [2]	3	2	14	3	5	4	1	1
Pacific States:								
Washington	2	5	5		3	57	1	1
Oregon		1	457	18	51	12	2	0
California	67	81	1, 565	105	42	146	1	8
Total	1, 426	2, 232	26, 144	1, 009	3, 157	3, 306	45	82

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended December 10, 1932, and December 12, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Dec. 10, 1932	Week ended Dec. 12, 1931	Week ended Dec. 10, 1932	Week ended Dec. 12, 1931	Week ended Dec. 10, 1932	Week ended Dec. 12, 1931	Week ended Dec. 10, 1932	Week ended Dec. 12, 1931
New England States:								
Maine	0	0	29	44	0	0	13	3
New Hampshire	0	0	22	15	0	0	2	0
Vermont	0	2	11	8	0	7	0	0
Massachusetts	1	7	378	300	0	0	3	3
Rhode Island	0	1	43	18	0	0	1	0
Connecticut	0	4	90	48	0	15	1	1
Middle Atlantic States:								
New York	6	11	623	432	3	40	14	25
New Jersey	2	3	229	111	0	0	6	4
Pennsylvania	3	7	601	414	0	1	17	26
East North Central States:								
Ohio	2	2	406	516	16	13	14	19
Indiana	0	1	116	143	9	8	2	12
Illinois	3	13	434	367	4	19	20	19
Michigan	1	3	300	188	2	14	6	5
Wisconsin	0	5	104	89	3	10	1	1
West North Central States:								
Minnesota	0	8	68	40	1	6	2	1
Iowa	0	3	32	47	26	41	1	1
Missouri	0	2	94	74	0	6	2	4
North Dakota	0	0	21	22	4	2	1	1
South Dakota	1	0	13	16	3	10	2	1
Nebraska	0	0	20	27	1	6	0	2
Kansas	0	1	84	68	1	5	1	3
South Atlantic States:								
Delaware	0	0	10	7	0	0	2	1
Maryland [2]	1	1	130	109	0	0	11	6
District of Columbia	0	0	26	21	0	0	0	1
Virginia	0	------	100	------	0	------	15	------
West Virginia	0	0	65	46	2	4	15	21
North Carolina	1	0	102	85	0	0	10	6
South Carolina	0	0	10	15	0	0	3	9
Georgia [3]	0	1	18	35	0	2	12	14
Florida	1	0	14	9	0	2	2	3
East South Central States:								
Kentucky	1	2	44	78	0	0	6	16
Tennessee	0	0	62	53	0	3	8	14
Alabama [3]	2	8	48	60	0	0	8	28
Mississippi	0	0	26	24	2	4	4	6
West South Central States:								
Arkansas	0	0	19	23	4	7	3	14
Louisiana	1	0	12	22	5	3	17	33
Oklahoma [4]	1	3	45	38	0	4	7	12
Texas [3]	0	0	170	71	6	7	14	20
Mountain States:								
Montana	0	3	18	47	2	1	2	0
Idaho	0	0	10	5	4	0	1	0
Wyoming	1	0	2	11	0	0	1	0
Colorado	0	0	25	40	2	0	0	2
New Mexico	0	0	16	9	0	0	2	9
Arizona	0	0	53	5	0	0	0	0
Utah [2]	1	0	23	12	0	0	0	0
Pacific States:								
Washington	2	3	28	66	2	15	9	7
Oregon	0	0	17	18	5	6	1	6
California	2	3	130	163	16	5	6	10
	33	97	4,941	4,059	123	266	268	369

[1] New York City only.
[2] Week ended Friday.
[3] Typhus fever, week ended December 10, 1932, 14 cases: 11 cases in Georgia, 2 cases in Alabama, and 1 case in Texas.
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa and for 1931 are exclusive of Tulsa only.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week:

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
October, 1932										
Colorado	2	36	3	1	25		2	161	1	24
November, 1932										
Arizona	2	20	1,320		9	1	0	33	0	6
District of Columbia	1	32	12		4		2	55	0	9
Indiana	12	347	194		25		4	479	11	25
Maine	1	16	9		7		3	51	0	15
Missouri	4	340	5		50		1	480	2	20
New York	22	248		1	1,435		17	1,754	34	63
North Carolina	3	291	49		271	70	3	404	0	30
North Dakota	1	12	2		355		0	33	23	3
Vermont		9			5		2	38	0	0
Wyoming	1		1		17		0	35	0	1

October, 1932

	Cases
Colorado:	
Chicken pox	198
Impetigo contagiosa	36
Lethargic encephalitis	2
Mumps	34
Paratyphoid fever	1
Septic sore throat	5
Trachoma	1
Undulant fever	1
Vincent's angina	1
Whooping cough	54

November, 1932

	Cases
Anthrax:	
New York	2
Botulism:	
New York	1
Chicken pox:	
Arizona	31
District of Columbia	72
Indiana	474
Maine	219
Missouri	272
New York	1,349
North Carolina	418
North Dakota	63
Vermont	183
Wyoming	33
Conjunctivitis:	
Wyoming	1
Dysentery:	
Arizona	1
New York	16
German measles:	
Indiana	2
Maine	3
New York	67
North Carolina	8
Glanders:	
Indiana	1
Lethargic encephalitis:	
Indiana	2
New York	6
North Dakota	2
Mumps:	
Arizona	70
Indiana	32
Maine	9
Missouri	68
Vermont	106
Wyoming	3
Ophthalmia neonatorum:	
New York	3
Paratyphoid fever:	
New York	6
North Carolina	1
Psittacosis:	
New York	2
Rabies in animals:	
Missouri	1
New York [1]	1
Scabies:	
North Dakota	5
Septic sore throat:	
Missouri	13
New York	23
North Carolina	13
Wyoming	12
Tetanus:	
New York	4
Trachoma:	
Arizona	18
Indiana	1
Trichinosis:	
New York	8
Tularaemia:	
Indiana	1
Missouri	4
North Carolina	2
Typhus fever:	
District of Columbia	2
New York	3
North Carolina	2
Undulant fever:	
Indiana	3
Maine	1
Missouri	11
New York	23
North Carolina	1
North Dakota	1
Vincent's angina:	
Indiana	1
Maine	6
New York [1]	106
Vincent's infection:	
North Dakota	9
Whooping cough:	
Arizona	10
District of Columbia	29
Indiana	57
Maine	27
Missouri	20
New York	1,572
North Carolina	276
North Dakota	9
Wyoming	33

[1] Exclusive of New York City.

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WEEKLY REPORTS FROM CITIES

City reports for week ended December 3, 1932

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0		0	0	1	3	0	0	0	3	23
New Hampshire:											
Concord	0		0	0	2	0	0	1	0	0	16
Nashua	0		0	0	0	0	0	0	0	0	
Vermont:											
Barre	0		0	0	0	0	0	0	0	0	3
Burlington	0		0	0	0	0	0	0	0	0	15
Massachusetts:											
Boston	7		2	34	22	58	0	8	1	61	217
Fall River	1	1	1	0	0	3	0	1	1	4	28
Springfield	0		0	0	0	11	0	1	0	1	28
Worcester	4		1	0	3	15	0	1	0	6	42
Rhode Island:											
Pawtucket	0		0	0	1	0	0	0	0	0	12
Providence	2		0	0	0	9	0	1	1	19	69
Connecticut:											
Bridgeport	0		0	8	0	9	0	1	0	2	30
Hartford	1	1	1	0	2	4	0	0	0	3	50
New Haven	0		0	0	3	2	0	2	0	7	47
New York											
Buffalo	0		1	2	24	28	0	10	0	35	147
New York	36	17	8	222	110	150	1	77	6	143	1,445
Rochester	9		1	0	5	24	0	2	0	6	62
Syracuse	0		0	1	5	18	0	1	0	4	48
New Jersey:											
Camden	7		1	0	3	6	0	1	0	0	35
Newark	5	5	2	44	8	11	0	2	0	21	88
Trenton	0		1	0	5	4	0	3	0	12	36
Pennsylvania:											
Philadelphia	3	6	3	13	26	91	0	35	0	5	489
Pittsburgh	5	8	5	1	19	51	0	5	3	20	172
Reading	0		0	11	0	5	0	0	0	3	36
Ohio:											
Cincinnati	2		1	0	7	23	0	6	0	3	109
Cleveland	5	286	3	4	13	93	0	14	1	29	206
Columbus	3	171	2	98	6	13	0	3	0	1	98
Toledo	1	3	0	18	3	38	0	2	0	1	70
Indiana.											
Fort Wayne	6		0	0	2	1	0	0	0	0	26
Indianapolis	4		1	2	11	9	0	2	0	1	
South Bend	0		0	0	1	3	0	0	0	2	20
Terre Haute	0		0	1	5	1	0	0	1	0	23
Illinois:											
Chicago	9	33	16	44	60	185	0	38	2	32	707
Springfield	1	1	0	0	3	6	0	1	0	0	24
Michigan:											
Detroit	15	21	2	51	20	81	0	28	0	113	257
Flint	1	1	0	0	7	6	0	1	0	1	25
Grand Rapids	0		1	2	4	4	0	0	0	7	32
Wisconsin:											
Kenosha	0		0	0	0	3	0	0	0	1	11
Madison	0			1		2	0		0	0	
Milwaukee	4	2	2	6	4	20	0	3	1	38	114
Racine	0		0	0	0	3	0	0	0	5	11
Superior	0		0	1	0	0	0	0	0	0	8
Minnesota:											
Duluth	0		0	0	4	0	0	1	0	4	26
Minneapolis	1		0	6	10	18	0	1	1	11	111
St. Paul	0	1	1	0	5	12	0	3	0	19	67
Iowa:											
Des Moines	9			0		7	0		0	0	45
Sioux City	1			1		1	0		0	0	
Waterloo	0			0		2	0		0	10	
Missouri:											
Kansas City	2	8	0	5	9	12	0	7	0	1	120
St. Joseph	2		4	0	6	0	0	1	0	0	36
St. Louis	20	5	0	3	11	20	0	10	1	3	236
North Dakota:											
Fargo	0		0	0	2	2	0	0	0	0	4
Grand Forks	0		0	16	0	0	0	0	0	0	
South Dakota											
Aberdeen	0		0	0	0	2	0	0	0	1	
Sioux Falls	0		0	0	0	0	0	0	0	0	9
Nebraska:											
Omaha	15		0	1	7	18	1	1	0	0	43
Kansas:											
Topeka	2	2	0	9	1	3	0	0	1	0	19
Wichita	1		0	0	2	8	0	2	0	0	34
Delaware:											
Wilmington	0		0	0	1	2	0	2	0	0	32

City reports for week ended December 3, 1932—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maryland:											
Baltimore	0	11	1	3	23	43	0	13	0	14	241
Cumberland	1	------	0	0	1	1	0	0	0	0	12
Frederick	0	------	0	0	0	0	0	0	0	0	4
Dist. of Columbia:											
Washington	7	5	2	5	9	10	0	12	0	2	150
Virginia:											
Lynchburg	0	------	1	0	1	4	0	0	0	7	13
Norfolk	1	------	0	0	3	3	0	1	0	4	------
Richmond	1	------	1	0	6	3	0	0	0	0	50
Roanoke	1	------	0	0	2	4	0	0	0	0	18
West Virginia:											
Charleston	[1]1	2	0	0	0	3	0	1	0	0	7
Huntington	3	------	------	20	------	2	0	------	0	0	------
Wheeling	0	------	0	75	2	2	0	2	0	15	17
North Carolina:											
Raleigh	1	------	0	0	2	2	0	2	0	1	20
Wilmington	0	------	0	0	3	0	0	0	0	0	15
Winston-Salem	4	------	0	0	1	1	0	1	1	0	18
South Carolina:											
Charleston	1	30	1	0	1	1	0	3	0	0	16
Columbia	4	------	0	1	0	5	0	0	1	1	------
Georgia:											
Atlanta	11	134	0	0	5	9	0	4	1	6	76
Brunswick	0	------	0	0	0	0	0	1	0	0	3
Savannah	6	12	0	0	1	1	0	2	1	0	25
Florida:											
Miami	1	------	0	0	0	2	0	0	12	0	28
Tampa	3	------	0	0	3	1	0	1	0	0	23
Kentucky:											
Covington	------	------	------	------	------	------	------	------	------	------	------
Lexington	0	5	0	2	1	3	0	1	0	0	20
Louisville	10	43	0	0	14	10	1	5	0	3	97
Tennessee:											
Memphis	7	------	2	4	11	8	0	5	4	1	83
Nashville	5	------	4	1	5	1	0	0	0	0	55
Alabama:											
Birmingham	4	400	1	0	4	7	0	1	1	1	60
Mobile	1	188	7	0	4	2	0	0	0	0	26
Montgomery	1	213	------	0	------	0	0	------	0	0	------
Arkansas:											
Fort Smith	1	------	------	0	------	0	0	------	0	0	------
Little Rock	1	1	0	0	2	0	0	1	0	3	3
Louisiana:											
New Orleans	10	435	41	0	36	8	0	13	1	1	233
Shreveport	2	------	0	0	4	1	0	2	0	0	29
Oklahoma:											
Tulsa	4	------	------	0	------	4	0	------	0	1	------
Texas:											
Dallas	22	6	2	3	7	10	0	2	0	0	56
Fort Worth	6	------	1	1	3	20	0	2	0	0	34
Galveston	1	------	0	0	2	0	0	1	0	0	12
Houston	12	------	1	0	14	5	0	2	0	0	88
San Antonio	7	1	1	2	10	1	0	8	0	0	71
Montana:											
Billings	0	------	0	1	0	0	0	0	0	0	8
Great Falls	0	------	1	293	1	3	0	0	0	0	5
Helena	0	------	0	1	0	0	0	0	0	0	3
Missoula	0	------	0	------	0	0	0	0	0	0	8
Idaho:											
Boise	0		0	4	0	0	13	1	0	0	5
Colorado:											
Denver	6	------	6	8	14	14	0	6	1	0	87
Pueblo	0	------	0	0	1	0	2	0	0	0	6
New Mexico:											
Albuquerque	0	------	0	0	0	0	0	2	0	3	4
Arizona:											
Phoenix	0	------	7	0	14	0	0	11	0	0	------
Utah:											
Salt Lake City	2	7	7	0	3	3	0	0	0	0	31
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	4
Washington:											
Seattle	1	------	------	0	------	3	0	------	0	3	------
Spokane	0	------	------	0	------	1	0	------	0	0	------
Tacoma	0	------	0	0	0	5	0	2	0	0	24
Oregon:											
Portland	1	6	0	2	3	8	4	1	0	0	74
Salem	0	17	------	3	------	0	0	------	0	0	------
California:											
Los Angeles	33	414	12	14	25	41	0	39	1	27	340
Sacramento	1	22	0	2	13	4	0	1	0	6	49
San Francisco	------	------	------	------	------	------	------	------	------	------	------

[1] Nonresident.

City reports for week ended December 3, 1932—Continued

State and city	Meningococcus meningitis		Poliomyelitis cases	State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths			Cases	Deaths	
New York:				Minnesota:			
New York	5	3	0	St. Paul	1	0	0
New Jersey:				Maryland:			
Camden	1	0	0	Baltimore	1	1	1
Pennsylvania:				District of Columbia:			
Philadelphia	1	0	4	Washington	1	0	0
Ohio:				Georgia:			
Cleveland	1	0	0	Atlanta	1	0	0
Columbus	1	1	0	Washington:			
Illinois:				Seattle	0	0	1
Chicago	11	3	0	Spokane	0	0	1
Michigan:				California:			
Detroit	2	1	0	Los Angeles	0	0	1

Lethargic encephalitis.—Cases: New York, 1; Pittsburgh, 1; Detroit, 1; Dallas, 1; Portland, Oreg., 1.
Pellagra.—Cases: Baltimore, 1; Atlanta, 2; Savannah, 1; Montgomery, 3; Sacramento, 1.
Typhus fever.—Cases: New York, 1; Baltimore, 1; Charleston, S. C., 1; Savannah, 2.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended November 26, 1932.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases for the week ended November 26, 1932, as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Chicken pox		2	2	124	269	86	25	7	48	583
Diphtheria			10	42	19	7	4			82
Erysipelas				3	3	1		2	1	10
Influenza		8		2	27				2, 498	2, 535
Measles		4	7	33	222	7	1	17	8	299
Mumps			2		96	17			2	117
Pneumonia					8				7	15
Poliomyelitis			1	9	1			2	1	14
Scarlet fever		6	7	70	60	19	18	3	14	197
Smallpox								1		1
Tuberculosis	1		14	48	23	9	3	7	18	123
Typhoid fever	1		1	24	2	7	3		1	39
Undulant fever		1								1
Whooping cough		2		88	86	46	4	2	10	238

Quebec Province—Communicable diseases—Four weeks ended December 3, 1932.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the four weeks ended December 3, 1932, as follows:

Disease	Week ended			
	Nov. 12	Nov. 19	Nov. 26	Dec. 3
Cerebrospinal meningitis	1	1		1
Chicken pox	71	132	124	129
Diphtheria	38	31	42	31
Erysipelas	5	3	3	1
German measles	1	7	5	2
Influenza			2	1
Measles	117	67	28	99
Ophthalmia neonatorum	1	1		
Poliomyelitis	5	9	9	4
Scarlet fever	76	47	70	46
Tuberculosis	73	34	48	52
Typhoid fever	45	9	24	12
Whooping cough	134	120	88	123

ITALY

Communicable diseases—Four weeks ended August 21, 1932.—During the four weeks ended August 21, 1932, cases of certain communicable diseases were reported in Italy as folllows:

Disease	July 25-31		Aug. 1-7		Aug. 8-14		Aug. 15-21	
	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected
Anthrax	20	19	37	32	50	44	61	43
Cerebrospinal meningitis	11	10	8	8	5	5	12	11
Chicken pox	67	43	65	43	56	42	34	29
Diphtheria and croup	233	136	287	146	255	158	275	150
Dysentery	32	23	35	20	51	19	31	[illegible]
Lethargic encephalitis	3	3	3	3	2	2		
Measles	610	192	638	195	497	198	430	159
Poliomyelitis	43	31	36	28	28	25	32	30
Scarlet fever	227	103	231	102	253	106	282	117
Typhoid fever	725	368	871	420	1,045	520	1,062	509

JAMAICA

Communicable diseases—Four weeks ended December 3, 1932.—During the four weeks ended December 3, 1932, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island of Jamaica outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Chicken pox		2	Puerperal fever		1
Diphtheria	2	2	Tuberculosis	36	64
Dysentery	3	2	Typhoid fever	7	78
Erysipelas		1			

MEXICO

Vera Cruz—Reportable diseases—September-November, 1932.—During the three months ended November 30, 1932, the following diseases were reported in Vera Cruz, Mexico:

Disease	September, 1932		October, 1932		November, 1932	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Bronchitis		6		3		6
Cancer		4		6		4
Chicken pox					1	
Conjunctivitis, infectious			1			
Diphtheria			2		2	1
Dysentery	7	9	5	2	5	
Erysipelas	1	1				
Gastro-enteritis		59		49		40
Hookworm disease		3		5		6
Leprosy			2	1		
Malaria	279	14	557	8	394	19
Measles	15	2	25	4	5	
Pneumonia		12		13		13
Poliomyelitis					1	1
Puerperal fever		2		1		
Septicemia				1		
Septic sore throat					4	
Syphilis, hereditary		10		9		7
Tetanus		3	1			
Tuberculosis	20	17	26	23	31	17
Typhoid and paratyphoid fever	8	9	3	2	9	
Whooping cough		2				

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of the quarantinable diseases appeared in the Public Health Reports for November 25, 1932, pp. 2231–2244 A similar cumulative table will appear in the Public Health Reports to be issued December 30, 1932, and thereafter, at least for the time being, in the issue published on the last Friday of each month)

Plague

Azores.—Two cases of plague were reported in rural districts in the Azores Islands in October, 1932.

Smallpox

Brazil.—Under date of December 2, 1932, several cases of smallpox were reported at Recife, State of Pernambuco, and in the State of Parahyba, Brazil.

Typhus Fever

Irish Free State—County Kerry.—On December 1, 1932, 19 cases of typhus fever were reported in the Killarney rural district of County Kerry, Irish Free State.

Yellow Fever

French Sudan—Kayes.—A fatal case of yellow fever was reported December 4, 1932, at Kayes, French Sudan.

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HEALTH REPORTS

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DECEMBER 30 - - 1932

IN THIS ISSUE

Rocky Mountain Spotted Fever Virus From Tick in Nature
Typhus Virus Recovered From Wild Rat at Typhus Focus
Deaths in Large Cities for the Week Ended December 10
Current State and City Reports of Communicable Diseases
Quarantinable and Other Diseases in Foreign Countries

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UNITED STATES PUBLIC HEALTH SEɪ.'

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of public health.

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CONTENTS

PUBLIC HEALTH REPORTS

VOL. 47 DECEMBER 30, 1932 No. 53

ROCKY MOUNTAIN SPOTTED FEVER (EASTERN TYPE)

VIRUS RECOVERED FROM THE DOG TICK *Dermacentor variabilis* FOUND IN NATURE

By L. F. BADGER, *Passed Assistant Surgeon, United States Public Health Service*

The American dog tick *Dermacentor variabilis* has a wide distribution in the eastern part of the United States and is the common tick in the localities in Maryland and Virginia where the eastern type of Rocky Mountain spotted fever has occurred (1). Maver (2) reported experimental transmission of the western type of Rocky Mountain spotted fever by the *Dermacentor variabilis*, and Dyer (3) reported the experimental transmission of the eastern type of the disease by the same tick.

During the tick seasons of 1930, 1931, and 1932 attempts were made to recover the virus of spotted fever from the *D. variabilis* found in nature. Several thousand ticks were collected in the States of Maryland and Virginia. In 1930 an occasional guinea pig, upon which ticks had fed or into which ticks had been inoculated, failed to react to subsequent inoculations with the virus of spotted fever. Such evidence alone was regarded as too meager to warrant any conclusions. In 1931, in addition to such occasional apparent immunity produced in guinea pigs by feeding or inoculating ticks, the vascular and nodal lesions, characteristic of spotted fever, were found in the brain of a guinea pig in the fourth generation from the animal inoculated with ticks. This strain of virus was contaminated and discontinued before other criteria for the identification of a strain of spotted fever virus could be fulfilled.

In 1932, efforts to obtain and prove a strain of spotted fever virus from ticks infected in nature met with success. This strain of virus obtained from ticks was proved to be one of spotted fever by the following facts: It produced in laboratory animals symptoms identical with those produced by a known virus of spotted fever (eastern type); it produced the same brain lesions as those produced by the spotted fever virus; it produced in the serum of the rabbit and the monkey agglutinins for *B. proteus* X_{19}; a complete cross immunity with the virus of Rocky Mountain spotted fever was demonstrated.

PROCEDURES

Approximately 200 ticks (*D. variabilis*) were collected from a farm in Virginia on which a human case of the disease had occurred. The ticks, which were not numerous on this farm, were collected a few at a time during the period July 12 to September 2, 1932. The unfed and partly engorged ticks were fed, in lots of 3 to 15, on guinea pigs. When the female ticks had become engorged, the ticks were removed, washed with alcohol and ether, emulsified in normal salt solution, and inoculated intraperitoneally into fresh guinea pigs. Those female ticks which were engorged, at the time of collection, were emulsified in normal salt solution after being washed with alcohol and ether, and inoculated intraperitoneally into fresh guinea pigs. In some of the tests the ticks were incubated at 37° C. for 24 or 48 hours before being allowed to feed, or before being inoculated.

Seven male and two unengorged female ticks, collected August 8, were incubated for 24 hours at 37° C. and allowed to feed on guinea pig 8014. On the eighth day after the application of the ticks the morning temperature of the guinea pig was 40° C. The ticks were removed. Each of the male ticks was feeding while one of the females had fed to engorgement and become detached. The other female had died, apparently without feeding.

THE VIRUS OBTAINED BY FEEDING OF THE TICKS

On the first day of fever, guinea pig 8014 was killed and bled from the heart. The cardiac blood was cultured and inoculated into two fresh male guinea pigs. Each animal received intraperitoneally 4 cc of the whole cardiac blood. The culture media inoculated with the blood revealed no growth for seven days, and each guinea pig reacted to the inoculation with fever. From these guinea pigs a strain of the virus of Rocky Mountain spotted fever was established.

THE VIRUS OBTAINED BY INOCULATING THE TICKS

The female tick which had fed to engorgement on guinea pig 8014, after having been incubated at 37° C. for 24 hours, was washed with ether, then alcohol, and again with ether. It was then emulsified in sterile salt solution and inoculated, intraperitoneally, into two fresh guinea pigs. Culture media inoculated with this emulsion remained sterile. The guinea pigs inoculated with this tick emulsion became febrile after a period of incubation of three days in one, and four days in the other. From these guinea pigs a strain of Rocky Mountain spotted fever virus was established. This strain of virus has now been carried in guinea pigs for 19 generations.

IDENTIFICATION AS A STRAIN OF ROCKY MOUNTAIN SPOTTED FEVER VIRUS

Clinical manifestations and gross pathology.—The reactions produced by this tick virus in the guinea pig, rabbit, and monkey are identical with those produced by the eastern type of spotted fever virus (1).

Microscopic pathology.—The brains of seven guinea pigs which had reacted to the tick strain of virus were examined microscopically. Vascular and nodal lesions like those seen in Rocky Mountain spotted fever and typhus were found in five of the seven brains examined.

Weil-Felix reaction.—This tick virus produced in the sera of rabbits and monkeys agglutinins to *B. proteus* X_{19}. Complete agglutination in the titer of 1:160 was observed.

Cross immunity tests.—There is a complete cross immunity between the virus obtained from the tick and the western and eastern spotted fever viruses. There is no cross immunity between this tick virus and the viruses of endemic and epidemic typhus.

Cultures inoculated with the cardiac blood of animals from which transfers were made were consistently negative.

Results of a few of the cross immunity tests are shown in the accompanying tables.

Table 1.—Guinea pigs immune to Rocky Mountain spotted fever (eastern type) inoculated, along with four fresh guinea pigs as controls, with the tick virus: The immune spotted fever guinea pigs failed to react (immune), while each of the fresh animals reacted.

Table 2.—Guinea pigs immune to the tick virus inoculated, along with four fresh guinea pigs as controls, with the virus of Rocky Mountain spotted fever (western virulent): The immune tick virus guinea pigs failed to react (immune), while each of the four fresh animals reacted.

Table 3.—Guinea pigs immune to a virus of endemic typhus inoculated, along with four fresh guinea pigs as controls, with the tick virus: The immune typhus guinea pigs reacted (non-immune), as did the fresh animals.

Table 4.—Guinea pigs immune to the tick virus inoculated, along with two fresh guinea pigs as controls, with the virus of epidemic (European) typhus: The immune tick virus guinea pigs reacted (non-immune), as did the fresh animals.

Table 1.—*Cross immunity tests between the virus recovered from ticks and the virus of Rocky Mountain spotted fever (eastern type). Daily temperature records*

Day after inoculation	Guinea pigs inoculated with the tick virus					
	Fresh guinea pigs				Immune Rocky Mountain spotted fever guinea pigs (eastern type)	
	8457	8458	8459	8460	T. M. 904	T. M. 907
0	39.0	39.3	39.3	39.0	38.8	39.2
1	39.5	39.1	39.0	39.0	38.6	38.5
2	39.5	39.5	40.0	39.5	39.0	38.8
3	39.8	39.0	39.8	39.5	38.8	39.2
4	39.5	39.3	39.5	39.5	39.0	39.0
5	40.0	39.5	39.8	39.5	39.0	39.0
6	40.0	39.0	40.4	39.1	39.2	39.0
7	41.3	39.4	39.6	39.2	38.6	38.8
8	41.0	40.5	39.5	40.0	38.8	38.4
9	41.0	40.5	40.0	39.0	38.0	38.0
10	40.7	([1])	40.2	39.5	39.0	38.5
11	39.0	----------	40.5	40.5	38.2	38.0
12	([2])	----------	41.0	40.5	38.0	38.0
13	----------	----------	----------	----------	----------	----------
14	----------	----------	40.8	40.2	38.0	38.0
15	----------	----------	([3])	39.8	38.2	38.0
16	----------	----------	----------	40.0	39.2	39.0
17	----------	----------	----------	38.8	39.2	39.0
18	----------	----------	----------	39.5	39.0	38.8

[1] Killed for transfer.
[2] Dead.
[3] Killed for pathological examination.

Table 2.—*Cross immunity tests between the virus recovered from ticks and the virus of Rocky Mountain spotted fever (western type). Daily temperature records*

Day after inoculation	Guinea pigs inoculated with Rocky Mountain spotted fever virus					
	Fresh guinea pigs				Immune tick virus guinea pigs	
	316	317	318	319	9008	9105
0	39.3	38.9	38.5	39.0	39.0	39.0
1	38.5	39.0	38.8	39.3	39.0	38.5
2	38.2	38.0	38.3	38.5	39.0	39.0
3	39.5	40.0	40.0	41.0	39.0	39.0
4	[1] 40.5	40.0	40.2	39.5	38.2	38.0
5	([2])	[1] 41.0	[1] 40.7	[1] 41.0	39.3	38.5
6	----------	----------	([2])	----------	----------	----------
7	----------	40.8	----------	41.0	39.0	39.0
8	----------	40.8	----------	41.2	39.0	39.0
9	----------	40.6	----------	40.0	39.5	38.8
10	----------	39.8	----------	39.3	39.5	38.8
11	----------	38.0	----------	([3])	39.3	39.0
12	----------	([3])	----------	----------	39.3	39.0
13	----------	----------	----------	----------	39.4	38.5
14	----------	----------	----------	----------	39.0	38.5

[1] Scrotal involvement. [2] Killed for transfer. [3] Dead.

TABLE 3.—*Cross immunity tests between the virus recovered from ticks and the virus of endemic typhus. Daily temperature records*

Day after inoculation	Guinea pigs inoculated with the tick virus					
	Fresh guinea pigs				Immune endemic typhus guinea pigs	
	9355	9356	9357	9358	W 3016	S 9100
0	38.6	38.5	39.2	38.5	38.8	39.4
1	39.5	38.8	39.7	39.0	39.5	39.5
2	39.3	39.0	39.0	40.5	39.5	39.0
3	40.2	39.5	40.5	40.0	39.5	39.5
4	40.0	40.0	39.8	40.2	39.2	39.3
5	41.2	40.0	40.5	40.5	39.5	40.0
6	40.8	(1)	40.0	40.8	39.5	40.2
7	40.5		40.0	39.5	40.3	39.5
8	40.8		39.5	(2)	40.0	40.0
9					40.4	40.4
10	40.0		39.0		40.6	39.5
11	39.3		39.0		40.0	39.0
12	(3)		(3)		39.8	38.5
13					38.6	38.5
14					39.0	39.0

[1] Killed for transfer.
[2] Died.
[3] Killed for pathological examination of brain.

TABLE 4.—*Cross immunity tests between the virus recovered from ticks and the virus of European (epidemic) typhus. Daily temperature records*

Day after inoculation	Guinea pigs inoculated with the epidemic typhus virus			
	Fresh guinea pigs		Immune tick virus guinea pigs	
	B 2147	B 2148	9421	9422
0	38.5	39.0	38.5	38.5
1	39.3	39.0	39.2	39.5
2			39.2	39.0
3	39.0	38.5	38.5	38.2
4	39.3	38.7	39.5	39.3
5			38.8	38.8
6	40.0	40.0	39.0	38.8
7	40.1	39.5	40.5	40.0
8	40.0	40.0	40.5	40.2
9	40.2	(1)	40.0	39.5
10	40.2		40.0	39.8
11	40.5		40.4	39.4
12	40.0		40.0	39.0
13	39.8		39.3	39.0
14	39.5		39.0	38.6

[1] Killed for transfer.

SUMMARY

A dog tick (*Dermacentor variabilis*) obtained from a farm on which a human case of spotted fever had occurred was proved to be infected in nature with the virus of Rocky Mountain spotted fever, eastern type.

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ENDEMIC TYPHUS FEVER VIRUS RECOVERED FROM WILD RAT TRAPPED AT TYPHUS FOCUS IN THE UNITED STATES

By R. E. Dyer, *Surgeon*, W. G. Workman, *Assistant Surgeon*, and A. Rumreich, *Passed Assistant Surgeon, United States Public Health Service*

Recovery of the virus of endemic typhus from rat fleas caught at typhus foci has been reported from the United States (1) (2) (3), Manchuria (4), and Greece (5). Endemic typhus virus has been recovered from the brains of wild rats trapped in Mexico (6), Greece (7), Manchuria (4), Syria (8), and the United States (9).

At the time of the report of the recovery of endemic virus from the brains of a wild rat in the United States, complete data were not recorded. Such data are the subject of this report.

In April, 1932, rats were trapped on premises in Savannah, Ga., where cases of endemic typhus had recently occurred. The brains of these rats were emulsified in salt solution and injected intraperitoneally into guinea pigs. The animals inoculated with the brain emulsion of one of these rats developed the characteristic febrile and scrotal reactions of endemic typhus. The guinea pigs showing the typical reactions were sacrificed and material from them (blood and testicular washings) was inoculated into other guinea pigs. In this manner the virus was perpetuated in guinea pigs and maintained for 30 generations.

Of 481 guinea pigs inoculated with this strain of virus, 30 died of intercurrent infections and 85 per cent of the survivors showed the characteristic scrotal reaction. It was noted that 90 per cent of the guinea pigs inoculated with testicular virus and 78 per cent of those inoculated with blood virus developed genital involvement. Rickettsiæ were found in smears made from the tunica vaginalis of infected guinea pigs. Four rabbits inoculated with the virus developed agglutinins for *B. proteus* X_{19}, type O, as follows: Complete agglutination, 1:160, two rabbits; 1:320, one rabbit; and 1:640, one rabbit.

The nodal lesions of typhus were found in the brain of one guinea pig used in propagating the virus. The brains of seven guinea pigs were frankly negative, while in the brains of six suggestive changes were noted. All of the guinea pigs chosen for microscopic pathology had shown typical scrotal involvement during life. Complete cross-immunity (see Tables 1 and 2), was found to exist between the strain of virus isolated from the wild rat and known strains of endemic typhus virus.

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CROSS-IMMUNITY TESTS

TABLE 1.—*Daily temperature records (centigrade)*

Guinea pig W-2572	Guinea pig W-2582	Guinea pig Sav. 6817	Guinea pig Sav. 6818
[a] 38.7	[a] 38.9		
----------	38.5		
38.5	39.0		
38.5	39.8 R. & S.		
39 0	40.0 R. & S.		
39.0	---- R. & S.		
39.0	40.3 R. & S.		
39.5	40 3 R. & S.		
40.3 R. & S.	40.0 R. & S.		
39.8 R. & S.	39.5 R. & S.		
40.0 R. & S.	39.0		
39.5 R. & S.	39 0		
39.6 R. & S.	----------		
39.5	39.0		
[b] 39.0	[b] 38.8	[b] 38.8	[b] 39.1
39.0	38.5	38.5	38.8
39.2	39.3	39.5	39.0
39.5	39 0	40.8 R. & S.	40.5 R. & S.
39.5	39.0	39.8 R. & S.	39.5 R. & S.
38.4	38.5	40.7 R. & S.	40.0 R. & S.
38.5	38.8	40 2 R. & S.	39.6 R. & S.
38.7	38 6	40.0 R. & S.	40.0 R. & S.
39.5	38.5	39.5	40.0
39.0	38.5	39.5	39.8
39.1	38.6	39.4	----------
39.5	39.5		----------
39.2	39.5		39.4
38.5	38.0		
39.5	39.0		
39.2	38.6		
39.0	38.5		
39.4	39.2		

[a] Inoculated with known endemic typhus virus.
[b] Inoculated with virus recovered from wild rat.
R. & S.=Characteristic scrotal involvement.

TABLE 2.—*Daily temperature records (centigrade)*

Guinea pig Sav. 9543	Guinea pig Sav. 9579	Guinea pig 9812	Guinea pig 9813
[a] 39.0	[a] 39.4		
38.9	38.9		
39.2	39.0		
	40.2		
39.0	40.0 R. & S.		
38.7	40.2 R. & S.		
40.0 R. & S.	---- R. & S.		
38.7 R. & S.	39.5 R. & S.		
39.9 R. & S.	39.6 R. & S.		
39.8 R. & S.	39.5 R. & S.		
---- R. & S.	39.1		
39.5 R. & S.	39.4		
40 0	39.6		
39.6	39.0		
[b] 38.5	[b] 38.5	[b] 38.5	[b] 39.0
38.5	38.7	38.6	38.7
38.6	39.0	39.5	39.8
38.4	39.0	38.9	40.2
39.0	39.4	39.0	39.8 R. & S.
39.0	38.6	39.1	40.5 R. & S.
38.7	39.1	40.0 R. & S.	40.1 R. & S.
39.1	39.0	39.8 R. & S.	39.5 R. & S.
38.5	30.0	([c])	39.6
39.5	39.5		
38.5	38.8		
38.6	39.4		
39.0	39 4		
39.5	39.0		
38.5	39.0		

[a] Inoculated with virus recovered from wild rat.
[b] Inoculated with known endemic typhus virus
[c] Killed for transfer.

R. & S.=Characteristic scrotal involvement.

DEATHS DURING WEEK ENDED DECEMBER 10, 1932

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Dec. 10, 1932	Corresponding week, 1931
Data from 85 large cities of the United States:		
Total deaths	8,651	7,768
Deaths per 1,000 population, annual basis	12.3	11.2
Deaths under 1 year of age	609	627
Deaths under 1 year of age per 1,000 estimated live births [1]	51	49
Deaths per 1,000 population, annual basis, first 49 weeks of year	11.1	11.7
Data from industrial-insurance companies:		
Policies in force	69,666,314	74,343,907
Number of death claims	12,381	13,176
Death claims per 1,000 policies in force, annual rate	10.0	9.2
Death claims per 1,000 policies, first 49 weeks of year, annual rate	9.5	9.6

[1] 1932, 81 cities; 1931, 77 cities.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended December 17, 1932, and December 19, 1931

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended December 17, 1932, and December 19, 1931

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Dec. 17, 1932	Week ended Dec. 19, 1931	Week ended Dec. 17, 1932	Week ended Dec. 19, 1931	Week ended Dec. 17, 1932	Week ended Dec. 19, 1931	Week ended Dec. 17, 1932	Week ended Dec. 19, 1931
New England States:								
Maine	3	18		9		131	0	1
New Hampshire	1	1			1		0	0
Vermont	2					101	0	0
Massachusetts	40	67	10	7	110	294	1	3
Rhode Island	4	4	1			390	0	0
Connecticut	5	9	13	8	13	67	0	3
Middle Atlantic States:								
New York	49	156	45	[1] 13	715	447	3	7
New Jersey	41	35	32	8	230	46	0	1
Pennsylvania	92	146			208	681	2	6
East North Central States:								
Ohio	78	92	644	7	203	59	3	1
Indiana	67	77	1,078	15	24	38	2	9
Illinois	80	135	167	3	54	36	11	4
Michigan	31	58	57	3	271	43	3	3
Wisconsin	13	23	111		222	39	0	1
West North Central States:								
Minnesota	6	27	10		84	24	3	0
Iowa	27	45			3	3	0	1
Missouri	26	102	184	4	14	6	4	8
North Dakota	9	5			120	7	0	0
South Dakota	20	2	17		2	80	0	0
Nebraska	35	15	26	4	1	6	1	0
Kansas	28	54	41	1	6	11	2	0
South Atlantic States:								
Delaware	4	9	1		1	1	0	0
Maryland [3]	26	58	171	24	6	6	1	2
District of Columbia	5	16	64	1			2	0
Virginia	30				147		0	
West Virginia	25	65	62	18	88	281	4	3
North Carolina	38	71	192	8	49	55	0	1
South Carolina [3]	12	13	1,446	406	11	86	0	0
Georgia [3]	36	26	3,954	49		1	0	0
Florida [3]	23	9	38	1	1		1	1

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended December 17, 1932, and December 19, 1931—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Dec. 17, 1932	Week ended Dec. 19, 1931	Week ended Dec. 17, 1932	Week ended Dec. 19, 1931	Week ended Dec. 17, 1932	Week ended Dec. 19, 1931	Week ended Dec. 17, 1932	Week ended Dec. 19, 1931
East South Central States:								
Kentucky	29	62	2,537				1	1
Tennessee	25	73	3,767	25	5	19	2	2
Alabama [3]	27	71	7,034	19	3	7	2	2
Mississippi	6	21					1	0
West South Central States:								
Arkansas	13	30	4,272	15	1		0	0
Louisiana	26	44	4,945	9		8	2	2
Oklahoma [4]	29	83	2,305	43	2	3	0	0
Texas [3]	104	106	498	14	232	4	0	0
Mountain States:								
Montana	1	1	1,388		449	104	1	1
Idaho	5	2	9		5	1	1	1
Wyoming			101		17	1	0	0
Colorado	6	3	313		8	4	0	0
New Mexico [3]	10	13	8	1	1	6	0	0
Arizona	5	11	174	5		1	1	0
Utah [3]	2	1	21	7			1	0
Pacific States:								
Washington	2	4	1		5	100	0	1
Oregon	1	1	769	57	45	3	1	0
California	64	105	1,271	104	27	99	1	4
Total	1,220	1,969	37,777	888	3,384	3,249	57	69

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Dec. 17, 1932	Week ended Dec. 19, 1931	Week ended Dec. 17, 1932	Week ended Dec. 19, 1931	Week ended Dec. 17, 1932	Week ended Dec. 19, 1931	Week ended Dec. 17, 1932	Week ended Dec. 19, 1931
New England States:								
Maine	0	0	31	28	0	0	0	2
New Hampshire	0	0	21	12	0	0	0	0
Vermont	0	0	11	7	0	10	0	0
Massachusetts	2	8	360	369	0	0	7	5
Rhode Island	0	0	34	26	0	0	0	0
Connecticut	0	0	63	58	0	32	2	4
Middle Atlantic States:								
New York	1	15	594	476	3	5	8	23
New Jersey	3	5	213	142	0	0	5	3
Pennsylvania	6	9	651	468	0	0	7	28
East North Central States:								
Ohio	2	3	550	326	8	20	21	6
Indiana	0	0	118	95	5	10	4	5
Illinois	0	6	391	307	2	18	11	5
Michigan	0	3	297	240	0	14	6	8
Wisconsin	2	0	84	63	1	3	1	3
West North Central States:								
Minnesota	0	9	73	63	0	3	0	0
Iowa	0	3	47	43	64	83	0	1
Missouri	0	1	76	74	0	6	1	5
North Dakota	2	0	12	28	0	22	0	0
South Dakota	0	0	10	19	1	11	2	1
Nebraska	0	1	50	23	3	5	0	4
Kansas	1	1	88	82	1	3	0	3
South Atlantic States:								
Delaware	0	1	11	1	0	0	0	1
Maryland [3]	0	0	100	87	0	0	7	11
District of Columbia	0	0	12	25	0	0	0	0
Virginia	0		78		0		13	
West Virginia	0	1	60	65	0	4	5	21
North Carolina	1	3	77	99	0	1	4	8
South Carolina [3]	0	1	13	13	2	0	5	11
Georgia [3]	2	1	22	28	0	6	2	14
Florida [3]	0	1	8	4	0	1	5	6

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended December 17, 1932, and December 19, 1931—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Dec. 17, 1932	Week ended Dec. 19, 1931	Week ended Dec. 17, 1932	Week ended Dec. 19, 1931	Week ended Dec. 17, 1932	Week ended Dec. 19, 1931	Week ended Dec. 17, 1932	Week ended Dec. 19, 1931
East South Central States:								
Kentucky	0	0	40	93	1	0	7	6
Tennessee	2	0	39	54	19	4	12	21
Alabama [3]	0	2	20	59	1	0	0	9
Mississippi	0	0	12	13	1	18	1	2
West South Central States:								
Arkansas	0	0	23	11	2	0	5	10
Louisiana	0	0	12	26	0	1	14	19
Oklahoma [4]	0	0	34	57	4	1	0	13
Texas [3]	0	0	82	73	7	7	6	12
Mountain States:								
Montana	0	1	10	36	0	2	1	3
Idaho	0	0	4	6	1	0	1	0
Wyoming	0	0	13	10	0	0	0	0
Colorado	0	0	25	21	0	0	0	8
New Mexico [5]	0	0	18	8	0	0	1	2
Arizona	0	0	5	9	0	0	1	0
Utah [2]	0	0	25	18	0	0	0	1
Pacific States:								
Washington	0	1	44	50	22	10	0	0
Oregon	0	0	20	19	7	11	2	0
California	3	2	111	127	1	2	8	6
Total	27	78	4,701	3,961	156	313	175	289

[1] New York City only.
[2] Week ended Friday.
[3] Typhus fever, week ended Dec. 17, 1932, 17 cases: 1 case in South Carolian, 8 cases in Georgia, 1 case in Florida, 5 cases in Alabama, and 2 cases in Texas.
[4] Figures for 1932 are exclusive of Oklahoma City and Tulsa.
[5] Rocky Mountain spotted fever, week ended Dec. 17, 1932, 1 case in New Mexico.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
November, 1932										
Alabama	4	237	2,206	133	14	14	2	189	2	29
Arkansas		135	387	70	9	39	1	161	5	36
Delaware		14	1		2		0	17	0	
Florida		132	17	51	1	2	0	30	0	9
Maryland	1	79	50		21	2	7	336	0	36
Massachusetts	10	160	14		279	1	4	1,039	0	12
Michigan	9	89	57	2	814		7	1,004	11	44
Minnesota	3	72	3		348		6	334	4	13
New Jersey	2	107	54		590		15	618	0	25
Pennsylvania	13	488		3	889	2	46	2,017	0	125
South Carolina		291	1,787	1,033	52	127	3	57	2	30

November, 1932

	Cases
Actinomycosis:	
Massachusetts	1
Chicken pox:	
Alabama	62
Arkansas	122
Delaware	33
Florida	1
Maryland	430
Massachusetts	1,127
Michigan	1,735
Minnesota	1,017
New Jersey	1,147
Pennsylvania	3,668
South Carolina	106
Dengue:	
South Carolina	2
Diarrhea:	
Maryland	14
South Carolina	287
Dysentery:	
Maryland	8
Massachusetts	24
Michigan	4
Minnesota	1
Minnesota (amebic)	1
Pennsylvania	4
German measles:	
Maryland	10
Massachusetts	25
New Jersey	32
Hookworm disease:	
South Carolina	52
Impetigo contagiosa:	
Maryland	62
Lead poisoning:	
Massachusetts	4
New Jersey	1
Lethargic encephalitis:	
Alabama	3
Michigan	5
Lethargic encephalitis—Contd.	
Minnesota	1
New Jersey	1
Pennsylvania	4
South Carolina	1
Mumps:	
Alabama	58
Arkansas	111
Delaware	4
Florida	3
Maryland	120
Massachusetts	353
Michigan	515
New Jersey	378
Pennsylvania	1,198
South Carolina	37
Ophthalmia neonatorum:	
Arkansas	2
Massachusetts	78
New Jersey	1
Pennsylvania	6
South Carolina	13
Paratyphoid fever:	
South Carolina	6
Psittacosis:	
Minnesota	2
Puerperal septicemia:	
Pennsylvania	27
Rabies in animals:	
New Jersey	16
South Carolina	6
Rabies in man:	
Alabama	1
Michigan	1
Scabies:	
Maryland	4
South Carolina	6
Septic sore throat:	
Maryland	1
Massachusetts	15
Michigan	23
Tetanus:	
Maryland	3
Massachusetts	1
Minnesota	1
Pennsylvania	4
South Carolina	3
Trachoma:	
Arkansas	26
Massachusetts	3
Pennsylvania	1
Trichinosis:	
New Jersey	1
Tularaemia:	
Arkansas	4
Maryland	6
Michigan	3
Minnesota	7
Pennsylvania	2
South Carolina	1
Typhus fever:	
Alabama	17
Maryland	2
South Carolina	1
Undulant fever:	
Alabama	1
Delaware	1
Maryland	3
Massachusetts	1
Michigan	2
Minnesota	3
New Jersey	3
Vincent's angina:	
Maryland	10
Whooping cough:	
Alabama	75
Arkansas	61
Delaware	21
Maryland	101
Massachusetts	396
Michigan	921
Minnesota	125
New Jersey	305
Pennsylvania	939
South Carolina	110

WEEKLY REPORTS FROM CITIES

City reports for week ended December 10, 1932

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Maine:											
Portland	1	------	0	0	0	11	0	0	0	5	20
New Hampshire:											
Concord	0	------	0	0	0	1	0	3	0	0	7
Nashua	0	------	0	0	0	0	0	0	0	0	------
Vermont:											
Barre	0	------	0	0	1	0	0	1	0	0	2
Burlington	3	------	0	0	0	2	0	0	0	0	5
Massachusetts:											
Boston	13	------	0	35	21	82	0	9	1	61	221
Fall River	------	------	------	------	------	------	------	------	------	------	------
Springfield	0	------	1	3	0	4	0	2	0	5	33
Worcester	2	------	0	1	2	22	0	1	0	0	47
Rhode Island:											
Pawtucket	0	------	0	0	0	0	0	0	0	0	15
Providence	0	------	2	0	5	18	0	2	1	36	70
Connecticut:											
Bridgeport	0	1	1	16	4	3	0	1	1	4	37
Hartford	1	2	1	2	3	4	0	2	0	3	34
New Haven	0	------	0	0	3	3	0	0	0	8	35
New York:											
Buffalo	2	2	0	4	30	44	0	5	0	22	140
New York	55	30	12	230	139	198	0	76	8	129	1,439
Rochester	0	------	1	0	8	22	0	1	1	3	52
Syracuse	0	------	0	3	3	20	0	2	0	9	59
New Jersey:											
Camden	6	------	1	0	2	6	0	3	0	2	35
Newark	5	14	0	36	11	17	0	5	0	13	103
Trenton	2	------	1	1	2	7	0	2	0	6	46
Pennsylvania:											
Philadelphia	5	------	1	23	30	122	0	20	1	9	515
Pittsburgh	12	35	12	0	60	38	0	11	3	14	264
Reading	0	------	0	15	1	2	0	1	0	7	28
Ohio:											
Cincinnati	1	2	5	0	17	18	0	3	1	3	147
Cleveland	9	275	10	4	34	79	0	9	3	25	233
Columbus	0	145	3	184	10	6	0	4	1	2	84
Toledo	2	7	3	8	6	26	0	3	0	6	76
Indiana:											
Fort Wayne	10	------	1	0	4	1	0	1	0	0	------
Indianapolis	2	------	5	7	14	8	0	8	0	3	------
South Bend	0	------	0	0	3	4	0	0	0	2	15
Terre Haute	2	------	1	0	4	2	0	0	0	0	24
Illinois:											
Chicago	13	77	19	66	72	205	0	42	1	31	752
Springfield	------	------	------	------	------	------	------	------	------	------	------
Michigan:											
Detroit	14	26	3	42	23	82	0	17	1	96	242
Flint	0	------	0	0	5	0	0	0	0	6	18
Grand Rapids	0	------	2	0	3	5	0	0	1	41	37
Wisconsin:											
Kenosha	0	------	0	0	0	5	0	1	1	1	8
Madison	1		------	0	------	1	0	------	0	1	------
Milwaukee	4	2	2	4	8	22	0	7	0	17	106
Racine	0	------	0	0	1	3	0	0	0	5	20
Superior	0	------	1	0	1	0	0	0	0	0	12
Minnesota:											
Duluth	0	------	0	0	6	4	0	1	0	9	25
Minneapolis	1	------	4	70	16	18	0	5	0	11	116
St. Paul	1	------	0	2	8	9	0	1	0	26	82
Iowa:											
Des Moines	12	------	------	0	------	10	0	------	0	0	30
Sioux City	0	------	------	0	------	2	0	------	0	2	------
Waterloo	0	------	------	0	------	0	0	------	0	0	------
Missouri:											
Kansas City	1	5	1	25	9	19	0	8	0	1	111
St. Joseph	3	------	2	1	12	2	0	3	0	0	------
St. Louis	19	6	7	2	15	26	0	10	1	1	219
North Dakota:											
Fargo	0	------	0	2	3	1	0	0	0	0	12
Grand Forks	0	------	0	21	0	0	0	0	0	0	------
South Dakota:											
Aberdeen	1	------	0	0	0	1	0	0	0	0	------
Nebraska:											
Omaha	10	------	0	0	0	8	0	0	0	0	52

City reports for week ended December 10, 1932—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Kansas:											
Topeka	3	-------	0	2	3	2	0	1	0	3	10
Wichita	0	-------	0	0	3	6	0	2	0	6	26
Delaware:											
Wilmington	0	-------	0	0	5	2	0	1	1	2	28
Maryland:											
Baltimore	2	33	1	6	22	69	0	17	1	26	207
Cumberland	0	-------	0	0	0	3	0	1	0	0	13
Frederick	0	-------	0	0	0	1	0	0	0	0	2
Dist. of Columbia:											
Washington	10	13	2	2	15	26	0	14	0	11	159
Virginia:											
Lynchburg	2	-------	0	0	5	4	0	0	0	5	10
Norfolk	0	-------	0	0	5	4	0	0	0	0	28
Richmond	1	-------	1	0	4	6	0	4	0	0	51
Roanoke	5	-------	0	0	0	5	0	0	0	0	12
West Virginia:											
Charleston	0	9	0	0	1	4	0	0	0	1	9
Huntington	4	-------	-------	17	-------	3	0	-------	0	0	-------
Wheeling	0	3	0	58	9	4	0	1	0	2	25
North Carolina:											
Raleigh	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Wilmington	0	-------	0	0	0	2	0	1	1	0	6
Winston-Salem	0	2	0	1	1	0	0	0	0	1	11
South Carolina:											
Charleston	0	56	2	0	1	1	0	0	1	0	20
Columbia	2	-------	0	1	1	0	1	2	0	0	11
Georgia:											
Atlanta	2	1,298	14	1	9	5	0	0	0	6	107
Brunswick	0	-------	0	0	0	0	0	1	0	0	4
Savannah	0	9	1	0	3	3	0	1	0	1	36
Florida:											
Miami	2	-------	0	0	0	1	0	1	0	0	20
Tampa	7	-------	0	0	2	0	0	0	0	0	23
Kentucky:											
Covington	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Lexington	1	20	0	0	2	2	0	5	0	0	23
Louisville	7	156	0	4	12	14	0	4	0	0	91
Tennessee:											
Memphis	3	-------	3	1	8	6	0	4	4	0	78
Nashville	7	-------	2	0	3	6	0	3	0	0	42
Alabama:											
Birmingham	4	1,332	5	0	7	12	0	2	1	0	71
Mobile	4	126	8	0	4	1	0	0	0	0	27
Montgomery	1	90	-------	0	-------	1	0	-------	0	0	-------
Arkansas:											
Fort Smith	3	-------	-------	0	-------	2	0	-------	0	0	-------
Little Rock	3	18	0	0	1	1	2	0	1	0	1
Louisiana:											
New Orleans	15	373	58	0	46	7	0	17	0	0	256
Shreveport	3	-------	0	0	8	0	0	0	0	0	44
Oklahoma:											
Oklahoma City	3	600	1	0	3	17	0	2	0	0	38
Tulsa	1	-------	0	0	0	0	0	0	0	0	1
Texas:											
Dallas	14	7	6	0	2	14	0	0	0	0	55
Fort Worth	7	-------	1	4	9	11	0	1	0	0	45
Galveston	4	-------	0	0	3	1	0	1	1	0	18
Houston	11	-------	6	0	17	6	0	1	0	0	73
San Antonio	5	7	4	0	16	5	0	5	0	0	74
Montana:											
Billings	0	-------	0	0	0	0	0	0	0	0	9
Great Falls	0	-------	0	169	0	0	0	0	0	0	2
Helena	0	249	0	0	0	0	0	0	0	0	3
Missoula	0	-------	0	0	0	0	0	0	0	0	5
Idaho:											
Boise	0	-------	0	7	0	1	7	0	0	0	7
Colorado:											
Denver	3	-------	9	6	31	11	0	4	0	1	112
Pueblo	0	-------	0	0	0	0	0	0	0	0	5
New Mexico:											
Albuquerque	0	-------	1	0	0	1	0	5	0	2	9
Arizona:											
Phoenix	0	-------	0	0	1	0	0	5	0	0	-------

City reports for week ended December 10, 1932—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Utah:											
Salt Lake City	0		5	2	5	7	0	2	0	1	38
Nevada:											
Reno	0		0	0	2	0	0	0	0	0	7
Washington:											
Seattle	0	1		0		4	0		3	7	
Spokane	0			0		0	0		0	0	
Tacoma	0		0	0	0	0	0	0	0	0	30
Oregon:											
Portland	0	6	1	0	7	5	3	4	0	0	71
Salem	0	16		11		0	1		0	0	
California:											
Los Angeles	28	422	10	26	28	36	15	18	0	34	302
Sacramento	0	7	2	0	10	1	0	6	0	0	39
San Francisco	3	101	5	2	12	8	0	9	0	45	152

State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths	
Massachusetts:			
Boston	1	0	0
New York:			
New York	1	1	1
Rochester	1	0	0
New Jersey:			
Newark	0	0	1
Pennsylvania:			
Philadelphia	0	0	3
Pittsburgh	2	0	0
Ohio:			
Cleveland	0	0	1
Indiana:			
Indianapolis	2	0	0
Illinois:			
Chicago	6	5	1
Michigan:			
Detroit	2	1	0
Nebraska			
Omaha	1	0	0
Tennessee:			
Memphis	1	0	0
Alabama:			
Mobile	1	0	0
Utah:			
Salt Lake City	1	1	1
Washington:			
Seattle	1	0	1
California:			
Los Angeles	0	0	1
San Francisco	0	1	0

1. Lethargic encephalitis—Cases: New York, 1; Chicago, 1; Washington, 1; Birmingham, 1; Los Angeles 1.
2. Pellagra—Cases: Charleston, S. C., 1; Atlanta, 1; Savannah, 2; Birmingham, 1; Dallas, 1; Los Angeles 1.
3. Typhus Fever—Cases. New York, 2; Savannah, 4; Montgomery, 1.

FOREIGN AND INSULAR

ALASKA

Cordova—Poliomyelitis.—Information was received December 15, 1932, that 6 cases of poliomyelitis, with 1 death, were reported in Cordova, Alaska. All patients and suspects had been quarantined and no suspect or person known to have been exposed was allowed on boats. Schools had been closed and every precaution was being taken. About one week had elapsed without the development of new cases.

CANADA

Provinces—Communicable diseases—Week ended December 3, 1932.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases for the week ended December 3, 1932, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis			1						1
Chicken pox	16	2	129	331	99	59		63	699
Diphtheria	5	3	31	10	3	6		2	60
Erysipelas			1		1			1	3
Influenza			1	7				1, 174	1, 182
Measles	3	4	101	470	29	2		11	620
Mumps	4			93	16			1	114
Pneumonia, all forms				10				11	21
Poliomyelitis			4	1					5
Scarlet fever	4	17	46	62	21	14		13	177
Trachoma					1				1
Tuberculosis	1		52	38	17	6		25	139
Typhoid fever			12	1	5	3		2	23
Undulant fever				1					1
Whooping cough	4		123	82	26	14		7	256

CUBA

Habana—Communicable diseases—Four weeks ended December 3, 1932.—During the four weeks ended December 3, 1932, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria	28	3	Scarlet fever	6	
Leprosy	1		Tuberculosis	17	
Malaria	23	2	Typhoid fever	9	3
Measles	3				

GREAT BRITAIN

England and Wales—Vital statistics—July-September, 1932.—During the third quarter of the year 1932, 156,302 births and 97,951 deaths were registered in England and Wales. The following statistics are taken from the Quarterly Return of Births, Deaths, and Marriages, issued by the Registrar-General of England and Wales. The figures are provisional.

Birth and death rates in England and Wales, July to September, 1932

Annual rates per 1,000 population:	
Live births	15.5
Stillbirths	.62
Deaths, all causes	9.7
Deaths from—	
Measles	.03
Scarlet fever	.01
Whooping cough	.05
Annual rates per 1,000 population—Contd.	
Deaths from—Continued.	
Diphtheria	0.05
Influenza	.04
Deaths per 1,000 live births:	
Diarrhea and enteritis (under 2 years)	7.3
Total deaths under 1 year	49.0

England and Wales—Infectious diseases—Thirteen weeks ended October 1, 1932.—During the 13 weeks ended October 1, 1932, cases of certain infectious diseases were reported in England and Wales as follows:

Disease	Cases	Disease	Cases
Diphtheria	9,317	Puerperal pyrexia	1,321
Ophthalmia neonatorum	1,117	Scarlet fever	17,795
Pneumonia	6,012	Smallpox	234
Puerperal fever	483	Typhoid fever	909

MEXICO

Tampico—Communicable diseases—November, 1932.—During the month of November, 1932, certain communicable diseases were reported in Tampico, Mexico, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria	2	1	Paratyphoid fever	3	1
Enteritis, various	85	75	Tuberculosis		32
Influenza	73	3	Typhoid fever	5	1
Malaria	892	27	Whooping cough	33	

PUERTO RICO

Communicable diseases—Four weeks ended November 5, 1932.—During the four weeks ended November 5, 1932, cases of certain communicable diseases were reported in Puerto Rico as follows:

Disease	Cases	Disease	Cases
Bronchitis	127	Ophthalmia neonatorum	9
Broncho-pneumonia	4	Paratyphoid fever	1
Chicken pox	44	Pellagra	4
Diphtheria	53	Pneumonia	15
Dysentery	410	Puerperal fever	3
Erysipelas	4	Syphilis	161
Filariasis	3	Tetanus	3
Impetigo contagiosa	1	Tetanus, infantile	11
Influenza	2,559	Tuberculosis	307
Malaria	3,694	Typhoid fever	12
Measles	289	Whooping cough	99
Mumps	40		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place		May 29–June 25, 1932	June 26–July 23, 1932	July 24–Aug. 20, 1932	Week ended— Aug. 27, 1932	September, 1932				October, 1932					November, 1932				December, 1932	
						3	10	17	24	1	8	15	22	29	5	12	19	26	3	10
Baluchistan	C		18	59		1														
	D		6	37	2															
China:																				
Amoy	C	3	955	496	36	52	41	31	17	7	6	4								
	D	2	479	212	14	1	15	10	5	2	3	2								
Canton	C	679	358	32	12	8	5	1	5	8	2	2								
	D	265	106	14	3		3	1	1	3	2	2								1
Dairen.[1]																				
Hankow	C	16	89	384	112	56	29	12	1		3									
	D		13	60	16	6	4	7	1		1									
Hong Kong	C	9	118	88	8	8	5	4	1											
	D	9	66	45	8	5	4	3	1											
Kwantung Leased Territory—District of Port Arthur	C		P	2					1											
Macao	C			93	4	4	1		1											
	D		26	92	4	4	1		1											
Nanking	C	254	397	563	93	104	48	13		12										
	D	79	70	84	7	14	7	1												
Newchwang	C	1	5																	
	D		4																	
Shanghai	C	588	1,360	1,648	258	131	110	47	21	11	3									
	D	53	92	139	17	11	10	6	1											
Swatow[2]	C	50	94	238			7	9	2	10	12	6		3						
	D	3	14	31			5													
Tientsin	C	41	222	69	22	5	5			1										
	D	8	22	3	1															
Tsinan—Shantung Province	C				P	P	P	P												
Tsingtao	C			10	22	5	5	4	4	2										
	D			2	8	1	1													

[1] 129 cases, 78 deaths, in Dairen, up to Aug. 28, 1932.
[2] Local unofficial reports included 159 deaths from cholera in Swatow, China, from June 10 to 30, 1932.

Chosen	C				8	9														
	D				8	1														
India	C	3,523	4,232	6,270	1,543	1,657	1,758	1,354	1,390	899	551	786								
	D	1,181	2,135	3,423	836	920	970	751	780	483	384	416								
Bombay	C		2	3									3	1		1				
	D		1	1									2			1				
Calcutta	C	380	405	158	22	23	20	17	16	14	11	21	6	11	24	28	15	8		
	D	186	171	57	9	8	3	5	3	6	6	2	1	3	10	3	6	5		
Rangoon	C	3	1				1													
	D	2																		
India, French:																				
Chandernagor	C	1																		
	D	1																		
Pondichery Territory	C			3																
	D			3																
Indo-China (see also table below):																				
Pnom-Penh	C	3		1				1	2		3									
	D	3						1	2		3									
Saigon and Cholon	C	6	1					1			1		1							
	D	4	1					1			1		1							
Japan:																				
Kobe	C	2																		
Osaka Prefecture	C			1																
Taiwan	C		16																	
Tokyo	C	3																		
Philippine Islands:																				
Bulacan Province	C			3																
	D			2																
Cebu Province	C									1										
	D									1										
Iloilo Province	C							1	13	3										
	D							1	8	2		1								
Iloilo	C			1																
	D			1																
Laguna Province	D		1																	
Leyte Province	C					10	30	3	4										6	7
	D					5	10	3	2										6	3
Manila	C										1									
Samar Province	C					21	16	17	7	12		29	15	8	30	0	0	35		
	D					11	12	11	9	8		21	15	5	22	0	0	26		
Siam	C	8	1	1								1	1							
	D	4		1									1							
Bangkok	C	2																		
Straits Settlements: Singapore	C									1										
	D									1										
On vessels:																				
S. S. Shanghai Maru at Kobe from Shanghai	C	1		1																
S. S. President Wilson en route to Manila from Honolulu via Shanghai and Hong Kong	C		2																	
	D		1																	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

CHOLERA—Continued

[C indicates cases; D, deaths; P, present]

Place		May 29–June 25, 1932	June 26–July 23, 1932	July 24–Aug. 20, 1932	Week ended— Aug. 27, 1932	September, 1932: 3	10	17	24	October, 1932: 1	8	15	22	29	November, 1932: 5	12	19	26	December 1932: 3	10
On vessels—Continued.																				
S. S. Protesilus at Hong Kong from Shanghai	C			P																
S. S. Nikawa Maru at Hong Kong from Shanghai	C			P																
S. S. Arankola at Rangoon from Calcutta	C	1																		
S. S. Shantung at Swatow from Shanghai	C		1																	
S. S. Yusang at Hong Kong from Shanghai	C			1																
S. S. Taisan Maru en route Tsingtao to Moji	C					1														

Place		April, 1932	May, 1932	June, 1932	July, 1932: 1-10	11-20	21-31	August, 1932: 1-10	11-20	21-31	September, 1932: 1-10	11-20	21-30	October, 1932: 1-10	11-20	21-31
Indo-China (French) (see also table above)																
Annam [3]	C		134		8											
	D		15		4											
Cambodia [3]	C	25	18	42	11	5	2	6	4			4	2	3	1	
	D	11	3	29	10	4	2	3	2			2	2	3		
Cochin-China [3]	C	27	41	51	16	10	5	2	4	5	8	8	2	4	3	3
	D	18	29	42	15	8	4	1	4	3	7	7	2	4	1	2
Laos [3]	C	7														
	D	3														

[3] Reports incomplete.

PLAGUE [1]

Place		May 29–June 25, 1932	June 26–July 23, 1932	July 24–Aug. 20, 1932	Week ended— Aug. 27, 1932	September, 1932: 3	10	17	24	October, 1932: 1	8	15	22	29	November, 1932: 5	12	19	26	Dec. 3, 1932
Angola. Naulila	C																	P	
Argentina:																			
Chaco—Villa Angela	C							6											
	D							3											
La Rioja Province	D															4			
Salta Province	C														7				12
	D														1				
San Luis Province [2]	C	2		1															
British East Africa (see also table below):																			
Tanganyika	C	20																	
	D	11										10							
Uganda	C	69	83	62	27	24	27	22	20	24	19	32	39						
	D	62	79	56	27	19	25	17	19	21	21	30	38						
Ceylon: Colombo	C	13	6	1		2	1	2	3			2	2	4	1	2	2	1	
	D	13	6			2	1	2	3			1	2	4	1	1	2	2	
Plague-infected rats				2		1				1	1	1	1	3	1				
Chile: Antofagasta—Plague-infected rats				3					1										
Dutch East Indies:																			
Surabaya	C			1				1											
	D			1				1											
West Java	C	196	180	154	47	64	65	83	82	119	116	101	130						
	D	195	180	151	48	63	64	83	80	113	109	101	128						
Ecuador. (See table below).																			
Egypt																			
Alexandria	C	4	5	6	1						1	3							
	D	4	2	5	1							3							
Assiout	C			1															
Beheira	C	2	1	1			1	1	1			1							
	D	1	2																
Beni Suef	C				1														
Gharbieh	C	3									1	1							
	D	1																	
Minieh	C		1				1	1		3	1				1				
	D		1																
Great Britain: Liverpool—Plague-infected rats									[3] 1										

[1] Including plague in the United States and its possessions.
[2] Several cases of plague with 1 death were reported at Quines, San Luis Province, Argentina, on Dec. 9, 1932.
[3] At dock where steamship City of Oxford was berthed.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place		May 29–June 25, 1932	June 26–July 23, 1932	July 24–Aug. 20, 1932	Week ended— Aug. 27, 1932	September, 1932: 3	10	17	24	October, 1932: 1	8	15	22	29	November, 1932: 5	12	19	26	Dec. 3, 1932
Hawaii Territory:																			
Hawaii Island—																			
Hamakua—Kukaiau—Plague-infected rats		1																	
Paaulo—Plague-infected rats																	1		
Maui Island—																			
Makawao	C			1				1											
	D			1				1											
Plague-infected rats				2	2					1									
India	C	448	1,122	2,545	972	1,059	647	1,097	1,312	1,462	1,789	1,465							
	D	302	631	1,482	638	633	375	562	760	863	1,031	[illegible]27							
Bassein	C	3	2	4	1					1					1				
	D	3	1	4	1					1					1				
Plague-infected rats				1								1							
Bombay	C	1					1	3				1	3						
	D	1	1	1			1	3				1	2						
Plague-infected rats		23	21	32	2	7	10	8	11	9	6	4	9	10	11	4	3	5	
Madras	C			5															
Madras Presidency	C	123	233	247	81	62	61	111	115	93	66	69	73	61					
	D	38	98	122	18	31	25	36	50	45	25	33	17	26					
Rangoon	C	1	2	3	3										1	1	1	1	
	D		2	3	3														
Plague-infected rats		3	5	5								2							
Indo-China. (See table below.)																			
Iraq: Baghdad	C	1	1	3		1			1					1	2			1	
	D								1										
Madagascar. (See table below.)																			
Morocco	C		7	1															
Peru. (See table below.)																			
Senegal. (See table below.)																			
Siam	C			1		6						1	4	1					
	D					3							2						
South West Africa[4]																			
Syria: Beirut	C	1	4	2	1		3		1	2	1		1	4	2	2	5	6	

United States:																		
California—																		
Los Angeles—Plague-infected rats	1																	
San Benito County—Plague-infected ground squirrels			2															
On vessels:																		
Steamship Columbia, at Naples from Barcelona—Plague-infected rats	2																	
S. S. City of Oxford at Liverpool from Alexandria—Plague-infected rats					1													
S. S. Figuig at Marseille from Bona and Philippeville C					1													
S. S. Patris at Beirut C															3			

Place		May, 1932	June, 1932	July, 1932	August, 1932	September, 1932	October, 1932	November, 1932
British East Africa (see also table above): Kenya	C	20	39	65	30	15	7	
Ecuador:								
Province—								
Chimborazo	C	10	2					
Loja	C			4		4		
	D			3		2		
Indo-China	C	2	1	2	2		1	1
	D	1	1	2	2		1	
Madagascar:								
Province—								
Ambositra	C		2	20	9	30		
	D		2	20	8	28		
Antsirabe	C	26	10	31	45	42		
	D	28	9	30	45	41		
Maevatanana	C			1	1			
Miarinarivo	C	1	3	10	5	8		
	D	1	3	9	5	8		
Moramanga	C			15	4	52		
	D			15	4	49		
Tamatave	C		1	2	2		1	
	D			1	2		1	
Tananarive	C	20	13	24	35	75		
	D	20	12	24	35	75		

Place		May, 1932	June, 1932	July, 1932	August, 1932	September, 1932	October, 1932	November, 1932
Peru	C	5	2					
Department—								
Ancachs	C							[5] 2
Lambayeque	C		2		1			
Libertad	C							[5] 1
Lima	C			1		2	2	
	D			1		2		[5] 5
Lima	C	1	2					
	D		1					
Piura	C							[5] P
Senegal								
Dakar [6]	C			10	37	7	3	
	D			9	23	7	2	
Louga [6]	C	3	1	4	1	2	9	
	D	2	1	3	1	2	6	
Rufisque [6]	C	3	21	28	23	8		
	D	3	17	27	21	5		
Thies [6]	C		8	16	5	15		
	D		3	13		11		
Tivaouane [6]	C					6		
	D					7		

[4] 204 cases of plague with 47 deaths were reported in Ovamboland, Southwest Africa, up to Oct. 29, 1932. Antiplague measures have been taken.
[5] Suspicious cases.
[6] Reports incomplete.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX

[C indicates cases; D, deaths; P, present]

Place		May 29–June 25, 1932	June 26–July 23, 1932	July 24–Aug. 20, 1932	Week ended— Aug. 27, 1932	September, 1932 3	10	17	24	October, 1932 1	8	15	22	29	November, 1932 5	12	19	26	December, 1932 3	10
Algeria:																				
Algiers	C	2			1					1			1			1	1			
Southern Territories	C			2																
Arabia—Aden	C												1				1	2		
Argentina:																				
Formosa Province	C							P												
Jujuy Province	C													1						
	D													1						
Belgium	C															1				
Brazil:																				
Parahyba—Joao Pessoa	C																		P	
Pernambuco—Recife	C																		P	
Porto Alegre (alastrim)	C	5	7	10	4		4	6												
Santos	C		2																	
British East Africa: Tanganyika	C	51	32	168	4	19	30	42	12	27	19	7	10	56						
	D	17		4	1			1		2		39		5						
British South Africa:																				
Northern Rhodesia	C	4	45	1																
Southern Rhodesia	C										1									
Canada:																				
Alberta	C																	1		
British Columbia	C	1																		
Manitoba	C		1	1									1			1				
Ontario	C		1	3			[1] 3						1							
Toronto	C																			3
Quebec	C	1																		
Saskatchewan	C	3	11				[1] 1		6										1	
China:																				
Amoy	C	1																		
	D																			
Canton	C		3	4		1				2			6	4	5	13	14	15	79	
	D												1		1		1	1		
Foochow	C		P	P		P		P		P		P			P	P				
Hong Kong	C	12	3	2																
	D	12	4	2																

Manchuria: Dairen	C	5																		
	D	3																		
Nanking	C		3									2								
Shanghai	C	3											1			4	1			
	D	[illegible]											1			2				
Tientsin	C	[illegible]																		
Chosen. (See table below.)																				
Colombia: Cali	D			2																
Dahomey	C	24	8					6	2				6							
	D	7	6																	
Dutch East Indies	C		6	1			1				1									
Egypt:																				
Alexandria	C	1	4	9	1	3	3	5	2	2	1	12	7	5	5	6	8	15	12	42
	D		1	4	1	2		1	3			6	4	2	4	3	4	3	2	9
Cairo	C																1			
Finland	C			1																
Gold Coast. (See table below.)																				
Great Britain:																				
England and Wales	C	140	104	76	13	10	9	19	7	23	17	12	33	34	21	23	16			
London	C	100	79	48	4	1	1	11	2	15	15	24		27	28	21	15			
London and Great Towns	C	128	95	67	12	5	4	17	4	21	17	11	33	34	21	22	16			
Greece. (See table below.)																				
Honduras:																				
Puerto Castilla	C	2	1							1							1			
Tegucigalpa	D				1															
Tela	C					1						2			2			1		
India	C	11,646	8,014	5,722	1,248	1,034	897	776	1,018	797	541	878								
	D	2,929	2,082	1,534	294	277	252	212	237	178	108	199								
Bassein	C			1																
	D			1																
Bombay	C	22	26	42	12	10	5	5	7	6	9	5	7	6	8	12	10	14		
	D	13	20	17	8	4	5	4	6	3	6	5	3	4	5	3	3	4		
Calcutta	C	64	40	29	2	6	6	9	5	3	1	13	6	28	9	10	19	14		
	D	47	33	20	1	4	2	1	3	3		8	5	8	6	5	8	5		
Cochin	C		2												1					
Karachi	C	20	1	2		1	1			1								1		
	D	4		1			2											1		
Madras	C	22	35	47	19	16	10	6	14	20	25	30	24	33	45	38	24	26		
	D	8	7	6	2		3		1	1	3	9	7	6	12	13	4	7		
Moulmein	C	5		1	1	1	1													
Negapatam	C										1	1	1	1	1		2	2		
	D															1	1			
Rangoon	C	29	26	5					1				1		1	1	1			
	D	11	6										1							
Tuticorin	C	1				7			7	6	6		9			3	8			
	D	1							1	2	3		3			1	2			
Vizagapatam	C		1																	

[1] These cases of smallpox are for periods of 2 weeks.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		May 29–June 25, 1932	June 26–July 23, 1932	July 24–Aug. 20, 1932	Week ended— Aug. 27, 1932	September, 1932 3	10	17	24	October, 1932 1	8	15	22	29	November, 1932 5	12	19	26	December, 1932 3	10
India (French):																				
Karikal	C	2																		
	D	1																		
Pondichery Territory	C	7	11	16	7	4	4	3	4	3	3	3					2		1	
	D	7	11	16	7	4	4	3	4	3	3	3					2		1	
Indo-China (see also table below):																				
Saigon and Cholon	C	18	7	8	2	1		1	1		1					1				
	D	17	7	8	2	1		2			1					1				
Iraq:																				
Baghdad	C	27	9	4	1	5			1	3		2	3	2	2	3	14	12	4	1
	D	12	1	2		1			1	1			2		2		5	4	1	1
Basra	C	8	4		3	1	1	1	2	10	5	16	18	17	21	29	27	22	19	
	D	2	2		1		1	1	2		1	5	9	11	16	13	17	17	6	
Ivory Coast. (See table below.)																				
Japan: Nagasaki	C	3																		
Mexico:																				
Chihuahua	D	5	1	3																
Jalisco (State)—Guadalajara	D	2																		
Mexico, D. F	C	18	16	12	5	2		2			4		1		2	1	1			
	D		3	1								1								
Monterrey	C															1				
Saltillo	D	2	3	3	1	1							1			2	2	4	1	4
San Luis Potosi	D	1												1		2				
Torreon	C	3								4	1			1						
	D	2																		
Morocco. (See table below.)																				
Nigeria	C	234	123	402		18		65				58	1	57						
	D	53	15	28		2		13				1		7						
Palestine	C		1																	
Persia	C	7			11	29	31	28	35	43	53	58				110				
	D	3			3	19	13	11	27	16	17	34				37				
Peru. (See table below.)																				
Poland	C	1		1																
	D	1																		

Portugal:																				
Lisbon	C	[illegible]	10	16	4	1	2	2	2	2	2	3		4		1	1			
Oporto	C	[illegible]	29	23	8	1	6	3	1		4				1		4	2	4	
Sarawak	C		7																	
Siam	C	9																		
Sierra Leone[1]	C	5		6		14		2												
Straits Settlements	C					1	1													
	D	3																		
Sudan (Anglo-Egyptian)	C	3				1							8					5		
Syria. (See table below.)																				
Turkey (see also table below): Istanbul	C	2																		
Union of Socialist Soviet Republics. (See table below.)																				
Union of South Africa:																				
Cape Province	C	P	P									P	P	P						
Orange Free State	C							P		P	P			P	P					
Transvaal	C	P																		
Upper Volta	C	1		1																
On vessels:																				
S. S. Tuscania at Suez from Bombay	C	1																		
S. S. Tilawa at Singapore from Amoy and Hong Kong	C	1																		
S. S. Marnix Van Ste. Aldegonde at Port Said	C		2																	
S. S. Ethiopia at Rangoon from Shanghai	C	1																		
S. S. Madras City at Kobe from Shanghai	C	1																		
S. S. Ranjput at Cochin from Colombo	C		1																	
S. S. British Splendour en route to Gibraltar	C																1			
S. S. Jervis Bay en route to Southampton	C																1			
	D																1			

Place		May, 1932	June, 1932	July, 1932			August, 1932			September, 1932			October, 1932			Nov. 1-10, 1932
				1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20	21-31	
Gold Coast	C	2														
Indo-China (see also table above)	C	289	251	72	54	62	36	42	69	73	39	15	52	76	29	50
	D	83	99	20	9	29	16	17	28	36	20	6	15	21	10	19
Ivory Coast	C		19													
	D		1													
Syria: Beirut	C			1					1							

[1] From Mar. 6 to July 9, 1932, 878 cases of smallpox, with 13 deaths, were reported in Sierra Leone.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		April, 1932	May, 1932	June, 1932	July, 1932	August, 1932	September, 1932	October, 1932
Chosen	C	55	55	50	9	5		
	D	5	8	4	7	3		
Greece	C	8			2			
Morocco	C	101	101	27	11	19	24	33
Peru	C					35	166	75
Turkey (see also table above)	C				3	30	13	13
	D					3	4	1
Union of Socialist Soviet Republics	C		3,289	1,672	967			

TYPHUS FEVER

Place		May 1–28, 1932	May 29–June 25, 1932	June 26–July 23, 1932	July 24–Aug. 20, 1932	Week ended— Aug. 27, 1932	September, 1932: 3	10	17	24	October, 1932: 1	8	15	22	29	November, 1932: 5	12	19	26
Algeria:																			
Algiers	C	61	30	33	10	28	6	2		2	5	3	3		1	5	1		2
	D											2							
Bona	C											2							
Constantine Department	C		1	102	20														2
Oran	C	4	10																
Argentina: Buenos Aires	C								1										
	D								1										
British East Africa: Uganda	C												16	18					
	D													4					
Bulgaria	C	38	15	10	4				1										
	D	3	2																
Chile (see also table below):																			
Antofagasta	C	1	1												1				
Iquique	C		1	1															
Santiago	C	1	8		15	2	3	4	13		32	10	19	11	7	6		4	
Talcahuano	D				1														
China:																			
Hankow	C	2	1	1															
Tientsin	C	1																	
Chosen. (See table below.)																			
Colombia: Cali	[illegible]										1							1	
Czechoslovakia. (See table below.)																			

Egypt:																			
Alexandria	C	1	8		1	1	8	1											
Beheira	C				15					21									
	D				1					7									
Dakahlia	C	69																	
Gharbieh	C					1						1							
Port Said	C		1	3	3			1					1			1			
Provinces	C	163	139	122	49	6				3									
	D	8	10	7	2														
Greece. (See table below.)																			
Guatemala. (See table below.)																			
Irish Free State:																			
Cork County—																			
Bandon	C												1						
Schull	C				1														
Dublin	C										1	1							
	D										1		1						
Kerry County—																			
Dingle	C					1													
Killarney	C																1		16
Roscommon County—																			
Leitrim	C	1																	
	D	1																	
Roscommon	C		1																
Lithuania. (See table below.)																			
Mexico:																			
Mexico, D. F.	C	8	7	11	4	1	4	2	3			1	2	2	1	6	2	6	
	D	2	2	8	2	2	2	3	2				1	1					
Monterrey	C				1														
	D				1														
Torreon	C			1			6											1	1
Morocco	C	19	26	6	8	1	5		1	1		1						2	4
	D		3		1														
Palestine	C	1	4	1		2			4	1	1	3			1	1			1
Persia	C	123	110	54	7	3			3	3			13				2		
	D	4	6																
Peru. (See table below.)																			
Poland	C	380	204	101	29	6	5	3	12	18	33	50	19	21	15	7	20	13	
	D	25	14	8	2		1	1		1	1	4	3	7	3	1	2	2	
Portugal:																			
Lisbon	C		7																
Oporto	C	3	4							1									
Rumania	C	234	45	56	20	5	3	3	6	2	5	1	1	1	6				
	D	23	10	7	2				1	1					2				
Tunisia: Tunis	C	55	28	8	6														
Turkey. (See table below).																			
Union of Socialist Soviet Republics. (See table below.)																			
Union of South Africa:																			
Cape Province	C	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P			
Natal	C	P	P	1						P				P	P	P			
Orange Free State	C	P	P	P	P	P		P	P	P	P	P	P	P	P	P			
Transvaal	C		P	P															
Yugoslavia. (See table below.)																			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

Place		May, 1932	June, 1932	July, 1932	August, 1932	September, 1932	October, 1932	November, 1932
Chile: Coquimbo Province	C							60
Chosen: Seoul	C		2					
Czechoslovakia	C	5	1					
Greece	C		4	3	14	15		
Guatemala	C		19		2	9		
	D	8	3			5		
Lithuania	C	13	16	7		5		
	D	1						
Peru	C				37	50	81	
Turkey	C		4	7	8	6	11	
	D			1	1		1	
Union of Socialist Soviet Republics	C	7,379	7,419	6,054				
Yugoslavia	C	34			1			
	D	6						

YELLOW FEVER

Place		May 29–June 25, 1932	June 26–July 23, 1932	July 24–Aug. 20, 1932	Week ended— Aug. 27, 1932	September, 1932: 3	10	17	24	October, 1932: 1	8	15	22	29	November, 1932: 5	12	19	26	Dec. 3, 1932
Bolivia.[1]																			
Brazil:																			
Ceara State	C							1	1										
	D	2		3				1	1										
Parahyba State	C	1																	
	D	1					2			1									
Pernambuco State	D	1	6	1			1	[2] 2				1							
French West Africa: Guinea	C															2	1	2	
	D															2	1	2	
Senegal	C												8						
	D												5						
Bakel—Kidira	C									1	4	1							
	D									1	4								
Upper Gambia	C								2			1							
	D								2										
Sudan (French): Keyes	C														3	1		1	1
	D														3	1		1	1
Upper Volta	C		1																
	D		1																

[1] Ab[illegible]aths from yellow [illegible]curred in southern Bolivia during the spring of 1932.

[2] Date uncertain.